QUARTERLY REVIEW of PEDIATRICS

Vol. 5 No. 1 February 1950

Potent ORAL PENICILLIN for All Age Groups

White's **drop-cillin** —a truly palatable liquid for drop-dosage to infants and small children—administered direct from the dropper or added to the first ounce or two of formula or other liquid—no tablets to crush, in suitable cases no unwanted injections—

50,000 UNITS* IN ONE DROPPERFUL

White's **dram-cillin** —for children and adults—the pleasant palatability which assures round-the-clock dosage—high potency in convenient dosage:

100,000 UNITS* IN A TEASPOONFUL

SUPPLIED

DROP-CILLIN—Supplied in 9 cc. "drop-dosage" bottles containing 600,000 units of penicillin. Solution is pink in color. Accompanying calibrated dropper (filled to mark) delivers approximately 20 drops (0.75 cc.) containing 50,000 units of penicillin.*

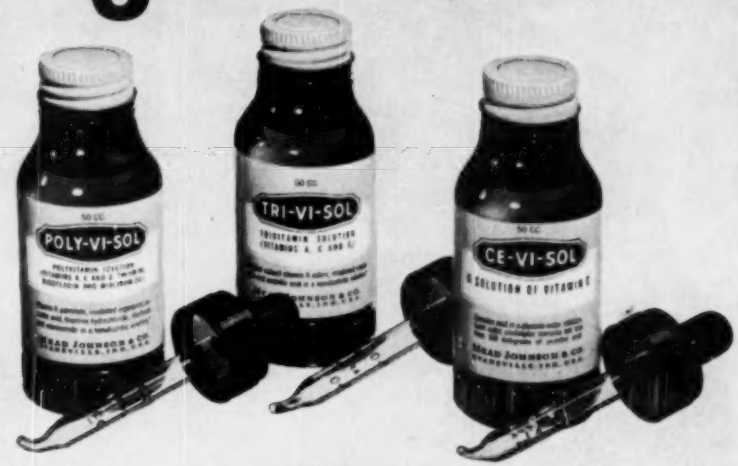
DRAM-CILLIN—in 60 cc. "teaspoonful-dosage" bottles containing 1,200,000 units of penicillin. Solution is ruby-red in color. Each teaspoonful (approximately 5 cc.) provides 100,000 units of penicillin.*

*(*buffered penicillin G potassium*)

Supplied to the pharmacist as a dry white crystalline powder. Dispensed freshly prepared, these delicious vanilla-flavored solutions will retain full stated penicillin potency for seven days when refrigerated.

WHITE LABORATORIES, Inc., Pharmaceutical Manufacturers, Newark 7, New Jersey

3 new water-soluble liquid vitamin preparations



Poly-Vi-Sol

Each 0.6 cc., the usual daily dose, supplies:

Vitamin A	5000 USP units
Vitamin D	1000 USP units
Thiamine	1.0 mg
Riboflavin	0.8 mg
Niacinamide	5.0 mg
Ascorbic Acid	50. mg

Tri-Vi-Sol

Each 0.6 cc., the usual daily dose, supplies:

Vitamin A	5000 USP units
Vitamin D	1000 USP units
Ascorbic Acid	50 mg

Ce-Vi-Sol

Each 0.5 cc., the usual daily dose, supplies:

Ascorbic Acid	50 mg

each is

Soluble in Water and other liquids
Scientifically Formulated
Pleasing to the Taste
Convenient to Administer
Ethically Marketed

Indications

All of these preparations are ideally suited for the routine supplementation of the diets of infants and children. They can also be administered to adults.

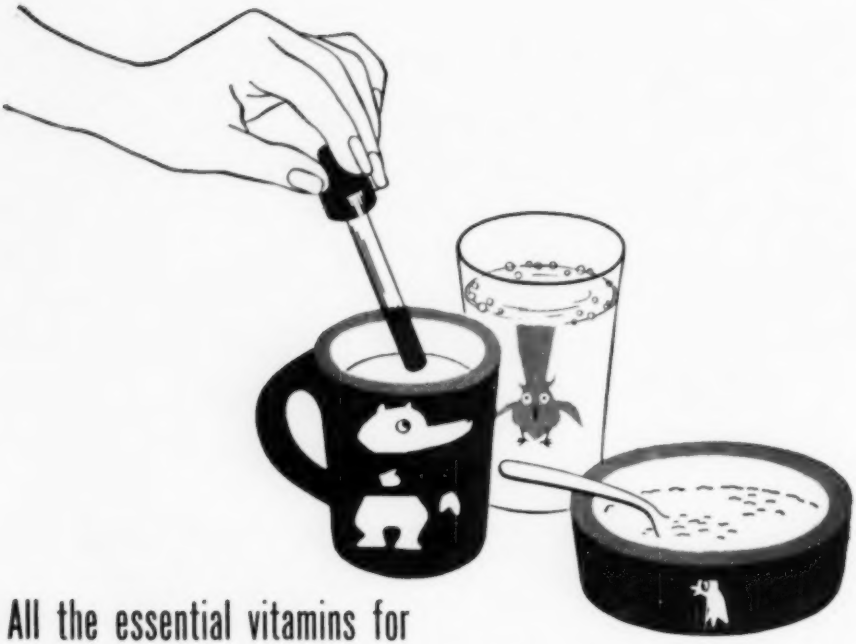
administration

Any of these preparations can be stirred into infant's formula, into fruit juice, milk or other liquid, or mixed into cereal, pudding, or other solid food. They can be given with a spoon or dropped directly into the mouth.

HOW SUPPLIED These products are available in 15 and 50 cc. bottles, each with an appropriately calibrated dropper.

MEAD'S

MEAD JOHNSON & CO. EVANSVILLE 21, IND., U.S.A.



All the essential vitamins for
average infant—in drop-dosage form

White's MULTI-VI DROPS

Water-miscible. Non-alcoholic. Vitamin D chemically identical to that of cod liver oil. Inexpensive. Very palatable.

Each 0.6 cc. contains:

Vitamin A	5000 U.S.P. units
Vitamin D_3	1000 U.S.P. units
Thiamine Hydrochloride	1.0 milligram
Riboflavin	0.4 milligram
Pyridoxine Hydrochloride	1.0 milligram
Sodium Pantothenate	2.0 milligrams
Nicotinamide	10.0 milligrams
Ascorbic Acid	50.0 milligrams

In bottles of 10 cc. and 30 cc. (with calibrated droppers).

White Laboratories, Inc., Pharmaceutical Manufacturers, Newark 7, N. J.

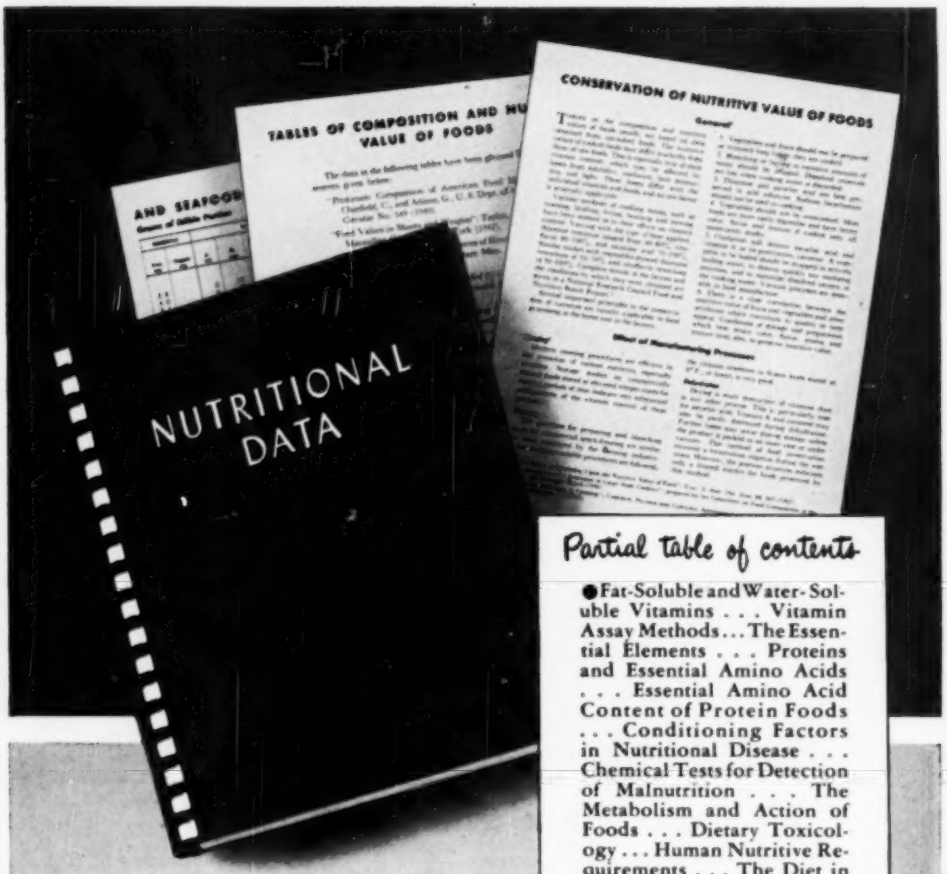
GOOD CARE MEANS GOOD NATURE!

Many doctors find gentle Johnson's Baby Powder helpful in keeping infant skin free from minor irritations. More widely recommended in the medical profession than all other brands put together.

JOHNSON'S BABY POWDER

Johnson & Johnson

Now Available . . . The New Heinz



Partial table of contents

NUTRITIONAL DATA, in its attractive new leatherette covered, plastic-bound form, is the successor to *Nutritional Charts*, previously published by Heinz.

Nutritional Data

Write Now For Your Complimentary Copy Of This Classic Handbook, Now Completely Revised and Modernized, With Authoritative New Charts And Tables For Practical Office And Laboratory Use

● **H. J. Heinz Company** is happy to announce the new NUTRITIONAL DATA, successor to the 12th Edition Nutritional Charts, one of the most popular reference books ever made available to the medical profession.

Since 1934 more than 650,000 copies have been printed; over 80% of the nation's medical schools use it as an aid in their teaching.

Now, thoroughly modernized by the addition of new research findings, NUTRITIONAL DATA comes to you in a handy new format, which makes it especially practical and valuable for your desk, office or laboratory use.

H. J. Heinz Company—maker of the famous 57 Varieties, and a pioneer in the preparation of quality foods since 1869—will be glad to send this new book gratis to every interested physician. Simply fill out the coupon below.

Other Heinz services to doctors

1. **Baby Food Gift Folders** . . . Attractive Coupon Books, for presentation to young mothers, redeemable at grocery stores. Truly valuable as gifts and they save need for office samples.

2. **NUTRITIONAL OBSERVATORY** . . . An authoritative quarterly magazine, summarizing current nutritional research, prepared by the Heinz Fellowship at Mellon Institute.

HEINZ
Baby 57 Foods

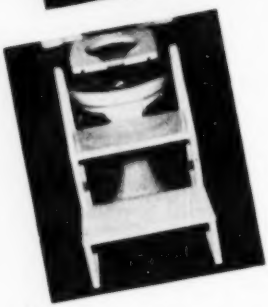
H. J. Heinz Co., Dept. QR-2, Pittsburgh, Pa.
Please send me my complimentary copy of NUTRITIONAL DATA.

Name_____

Street_____

City_____ Zone____ State_____

When training starts...



LITTLE TOIDEY

Whether you recommend baby be "conditioned" through the pleasant Little Toidey, before muscle control, or

you prefer the start be made after the toddler "knows what it's all about"

Toidey Habit Training Units can be helpful.

The recently developed Toddler's Toidey is particularly important for the child who starts second half of second year. It is also helpful if there has been a break in training and a new start has to be made. This Toddler's Toidey is all aluminum except that it has four suction cups on the underside of the seat so that this seat itself can be used on the toilet without the legs or the pan. This could be used as an emergency when traveling or later, when the child is two or three years old, in combination with Toidey Two Steps.

The Toddler's Toidey is also a Base for Little Toidey. The top is aluminum formed into a comfortable seat and enameled.

SPECIAL COURTESY DISCOUNT TO PHYSICIANS

The complete Toidey Habit Training Unit consists of Little Toidey (in plastic or wood), Toidey Base, Toideyette (deflector) and Specimen Collector. The complete unit or individual items are now available to members of the medical profession for their home or office use at a special courtesy discount of 20% from regular retail prices. Courtesy discount only on orders mailed directly to us.

THE TOIDEY COMPANY

Gertrude A. Muller, Inc.

FORT WAYNE, INDIANA, U. S. A.

QUARTERLY REVIEW OF PEDIATRICS

Vol. 5 No. 1 February 1950

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FOREWORD

The prime function of the QUARTERLY REVIEW OF PEDIATRICS is to make a survey, with a critical eye, of the important new contributions in every branch of pediatrics. Original reports are abstracted by pediatricians familiar with the subjects under consideration. The Editors and Editorial Board check over all abstracts and add interpretive or critical comments whenever necessary. The "Bookshelf" department reports informatively on new books the pediatrician should know about. Thus, within the covers of a single journal, there is brought together a concise chronicle of pediatric progress, well organized, reliable and complete. By exploring the entire expanse of medical literature the QUARTERLY REVIEW OF PEDIATRICS keeps its readers abreast of the most recent progress in all of pediatrics. A subscription to THE QUARTERLY REVIEW OF PEDIATRICS represents a continuous seminar on advances in pediatrics.

For convenience of reference the abstracts are grouped as follows:

1. Allergy
2. Anomalies, Genetics
3. Blood, Hemopoietic System
4. Cardiovascular System
5. Chemotherapy, Drugs, Poisons, Physical Agents
6. Clinical Pathology
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The Pediatric Bookshelf
New Books, Pamphlets
Announcements

Issues of the QUARTERLY REVIEW OF PEDIATRICS appear in February, May, August, and November. A cumulative index for each volume is included in the November number. Suggestions, correspondence and editorial communications should be addressed to Irving J. Wolman, M.D., *Editor*, The Children's Hospital, 1740 Bainbridge Street, Philadelphia 46, Pa. Subscriptions should be mailed to the Washington Institute of Medicine, 1708 Mass. Ave., N. W., Washington 6, D. C. Annual Subscription: $11.00. Three years: $28.00.

. . . R E N N E T - C U S T A R D S

F O R A N Y D I E T . . . A T A N Y A G E .

Psychologic Anorexia

In tempting, rather than forcing, rebellious or flagging appetites, delicious rennet desserts (easily made from "Junket" Brand Rennet Powder or Tablets) prove most helpful. Retaining all of milk's nutritive values, yet possessing varied flavor and color appeal—these simple, attractive, eggless custards are almost invariably consumed without bribe or persuasion. Besides pleasantly disguising uncooked milk, rennet-custards produce soft, finely flocculent, easily digested curds in the stomach. More and more physicians are thus finding rennet desserts a valuable means of counteracting the "finicky behavior" often attached to milk.

"JUNKET" BRAND FOODS
DIVISION
Chr. Hansen's Laboratory, Inc.
LITTLE FALLS, N. Y.

D-250

Just a reminder, Doctor! Mothers will appreciate your inclusion of rennet desserts on your diet recommendations.

They impart delicious variety, taste-tempting attractiveness and ease of preparation to milk desserts.

Make delicious rennet desserts with either:

"Junket" Rennet Powder — sweetened, in six flavors (vanilla, chocolate, lemon, orange, raspberry, maple).

"Junket" Rennet Tablets — unsweetened, unflavored (particularly for very young infants and diabetics).

"JUNKET" is the trade-mark of Chr. Hansen's Laboratory, Inc. for its rennet and other food products.

- **appetite stimulated...**
- **nutrition improved...**
- **greater resistance to infection exhibited...**

The common complaints of infancy—anorexia, undernourishment, slowness of weight gain, propensity to infection—are less frequently encountered when White's Multi-Beta Liquid is part of the infant's diet routine.

Five drops daily of White's Multi-Beta Liquid raises the average infant intake of all clinically important vitamin B factors to a safe level.

For adults, full supplementation of the essential vitamin B factors is provided with just one teaspoonful of White's Multi-Beta Liquid daily.

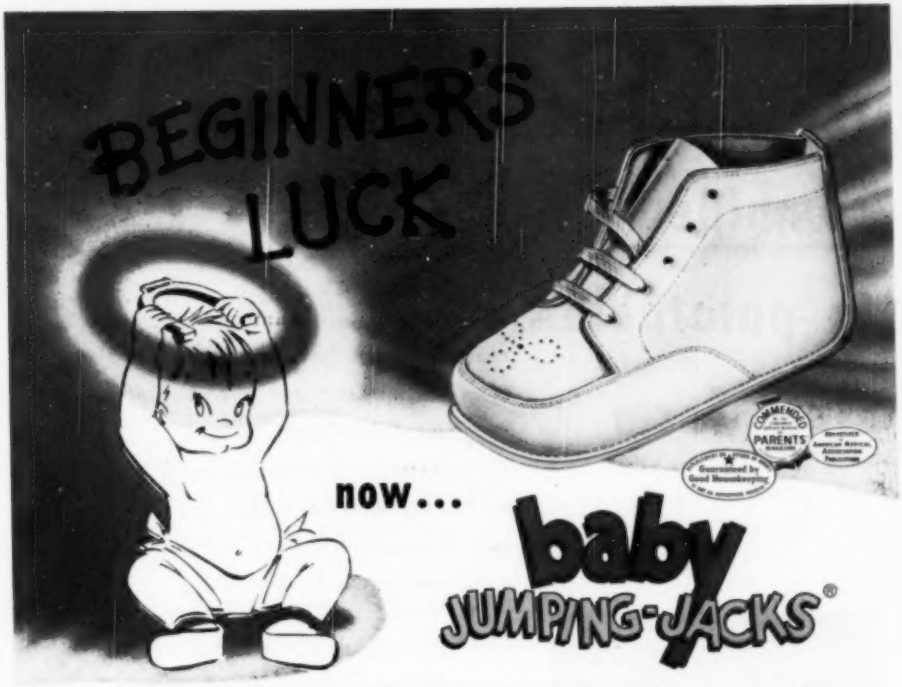
An excellent prescription ingredient...

Palatable, non-alcoholic and stable, White's Multi-Beta Liquid is ideally suited to prescription use. Compatible with such ingredients as: (1) Tincture Nux Vomica, in equal parts, (2) Elixir Phenobarbital, 1 to 4 parts, (3) White's Mol-Iron Liquid, 1 to 8 parts.

White's *Multi-Beta Liquid*

...multi-purpose B complex source

WHITE LABORATORIES, INC., Pharmaceutical Manufacturers, Newark 7, N. J.



now...

baby JUMPING-JACKS®

FOR NEW-BORN FELLERS AND GALS

Beginner's luck indeed—being born in an age that produces such wonderful shoes as BABY JUMPING-JACKS. BABY JUMPING-JACKS are made of the finest, soft and flexible leathers to cuddle and protect young, tender feet. In true JUMPING-JACK tradition these new "first shoes" are quality made and painstakingly finished.

LOOK FOR THIS STAMP ON THE SOLE

baby JUMPING-JACKS®

FROM CRADLE TO SIX MONTHS

VAISEY-BRISTOL SHOE COMPANY, INC.
ROCHESTER 3, NEW YORK
MADE IN CANADA BY THE SAVAGE SHOE COMPANY, LIMITED • PRESTON, ONTARIO

here are the 2 safest sulfonamides combined in palatable fluid form

"The value of sulfonamide mixtures in reducing crystalluria and renal complications is based on undisputed experimental evidence."[1]

ESKADIAMER *is a combination of the two safest sulfonamides* now in general use—sulfamerazine and sulfadiazine.

Children—and adults who balk at bulky half-gram tablets—take ESKADIAMER willingly because it tastes good and is easy to swallow. Because ESKADIAMER is so unusually palatable, it is particularly useful when a prolonged course of therapy (as in prophylaxis) is indicated.

1. J.A.M.A. 139:398 (Feb. 5) 1949

Eskadiamer

the delicious fluid preparation of sulfamerazine and sulfadiazine

Smith, Kline & French Laboratories, Philadelphia

Each 5 cc. (one teaspoonful) contains 0.25 Gm. (3.86 gr.) microcrystalline sulfamerazine and 0.25 Gm. (3.86 gr.) microcrystalline sulfadiazine—the dosage equivalent of the standard 0.5 Gm. (7.7 gr.) sulfonamide tablet.

1 ONLY SIMILAC IS NEEDED

whenever possible . . . **BREAST FEEDING** as long as possible . . .

or

SIMILAC

so similar to human breast milk that there is no closer

equivalent

1. SAVES TIME AND MONEY—one can of Similac supplies 116-oz. of formula—20 calories an ounce at an average cost of less than 9/10ths of a cent per ounce.

2. SAVES TIME AND MONEY—no milk modifiers needed with Similac; its higher vitamin content must be considered; helps avoid costly complications of ordinary formula feedings.

3. SAVES TIME AND MONEY—easily prescribed, easily prepared—simply 1 measure of Similac to 2 oz. of water.

SIMILAC FOR GREATER INFANT FEEDING VALUES

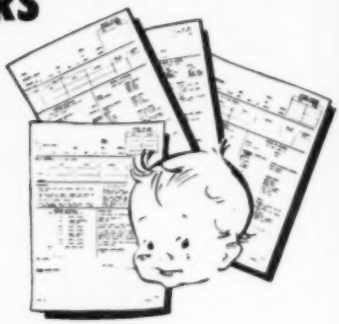
2 BABIES THRIVE ON EASILY DIGESTED SIMILAC WITH ITS ZERO CURD TENSION

3 SAVES YOU TIME

SIMILAC DIVISION • M & R DIETETIC LABORATORIES, INC.

COLUMBUS 16, OHIO

HANDY TIMESAVERS FOR YOU!



PEDIATRIC FEEDING DIRECTIONS
(birth to 3 mos., 3-6 mos., 6-10 mos., over 10 mos.)

Easy to use, complete, adaptable to individual patients. Help mothers follow your directions accurately. Each contains: formula or diet charts; food lists; food preparation methods; weight record; spaces for your directions, next appointment. Available in pads of 50 each, imprinted if desired.

ALSO... This GIFT for Your Young Patients

Eight-page book with pictures for the youngster to color. Written in primer style. Emphasizes health practices and other good habits you and the mother want the child to develop. Yours—to give your young patients.

Use this coupon for sample copies and a postage-paid order card. After examination, mail card to order in quantity.

NO COST OR OBLIGATION!

RALSTON PURINA COMPANY, Nutrition Service
LQ-5 Checkerboard Square, St. Louis 2, Missouri

Please send the FREE material checked below:

.... C848 1 set Feeding Direction Forms
.... C958 1 child's Color Book

Name_____ M. D.

Street_____

City_____ Zone____ State_____

When Rapid Growth Calls For HIGH IRON and THIAMINE– Remember RALSTON!

Instant Ralston—enriched whole wheat cereal—is a *rich* source of iron and thiamine. A single 1-ounce serving supplies the following percentages of the minimum daily requirement:

	1-6 years	6-12 years	adults
IRON	113%	84.9%	84.9%
THIAMINE	84%	56%	42%

Plus 3.5 Gm. PROTEIN

Cooks in 10 seconds

Instant Ralston supplies riboflavin and niacin, too . . . in taste-appealing, readily digested form.

No . . . it won't taste gritty to his tongue . . .

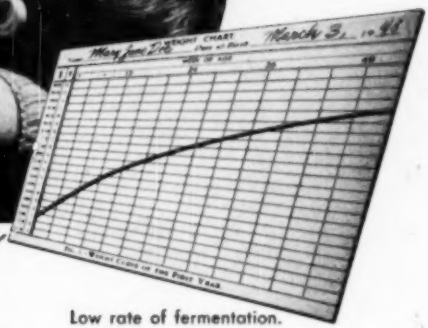
Mothers appreciate the smoothness of texture and uniform consistency of Libby's Baby Foods. Infants are quick to detect large particles and to spit them out . . . with Libby's this never occurs. Through Libby's exclusive process of homogenization, cellulose capsules are ruptured, and cell envelopes are reduced to microscopic dimensions. Nutrients are homogeneously dispersed throughout the food mass, making for greater and easier availability. Grittiness is impossible with this process. In consequence, Libby's have been fed as early as the 6th week of life, since they flow freely through normal nipple openings when mixed with the milk formula.

ACCEPTED COUNCIL ON FOODS AND NUTRITION AMERICAN MEDICAL ASSOCIATION

Beets • Carrots • Green Beans • Peas • Spinach • Squash • Vegetable Soup • Mixed Vegetables • Garden Vegetables • Liver Soup • Vegetables with Bacon • Vegetables with Beef and Barley • Vegetables with Lamb • Apples and Apricots • Apples and Prunes • Apple Sauce • Apricot-Farina • Peaches • Peaches-Pears-Apricots • Pears and Pineapple • Prunes (with Pineapple Juice and Lemon Juice) • Custard Pudding

Libby, McNeill & Libby • Chicago 9, Illinois

To Maintain a Steady Weight Curve



Cartose is a carefully proportioned mixture of dextrins, maltose and dextrose.

Since each of these carbohydrates has a different rate of assimilation, a steady supply of carbohydrate is released for "spaced" absorption.

Low rate of fermentation.

Low incidence of digestive disturbances.

Bottles of 1 U. S. pint.

Write for formula blanks.

Specifically Designed for Infant Feeding

CARTOSE®

MIXED CARBOHYDRATES IN EASY-TO-USE LIQUID FORM

Compatible with all milk formulas

Less Colic · Less Diarrhea

Winthrop-Stearns INC. · NEW YORK 13, N. Y. WINDSOR, ONT.

Cartose, trademark reg. U. S. & Canada

1/2 cc.

Improved Cutter Pediatric Toxoids, Alhydrox* or plain, are now more highly purified. Increased potency reduces the dosage volume one-half, and gives the same high immunities you have always obtained with Cutter Toxoids. Write for immunization schedule. Cutter Laboratories, Berkeley, Calif.

* *Trade name for Aluminum Hydroxide adsorption, exclusive with Cutter. Alhydrox, added to proven, potent biologicals, results in a solid immunity and less pain on injection.*

QUARTERLY REVIEW

of

PEDIATRICS

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The Pediatric Bookshelf

Announcements

SPONSOR:	STATION:
CARNATION COMPANY	CBS FULL NETWORK
PROGRAM:	**BROADCAST TIME:**
CONTENTED HOUR	SUNDAY 10:00 P.M. EST

WALLINGTON: When your baby is old enough to go off formula feedings your doctor will let you know. Don't be impatient and don't take advice from anybody except your doctor. He knows best.

Excerpt from the actual script of a recent broadcast of Carnation's Coast-to-Coast "Contented Hour"

Carnation Has Always Said: *"ASK YOUR DOCTOR"*

Carnation is against self-medication of *any* type. Our long association with health problems has convinced us of the real *dangers* inherent in the well-meant but ill-informed "medical" advice of friends and relatives.

Since Carnation is sincerely interested in the health of America's children—and because we *know* that *only the doctor* is qualified to prescribe for infant feeding—Carnation has always said, and will continue to say: "Ask Your Doctor"!

Millions of times every month, Carnation advertising directs young parents to the source of the soundest advice on child health—the doctor.

It is gratifying to realize that this long term educational work is producing tangible results. *The evidence:* **...8 out of 10 mothers raising their children on Carnation say their doctor recommended it!**

Here is how Carnation protects the doctor's recommendation

You can prescribe Carnation Evaporated Milk *by name* with complete confidence. Every drop in every can of Carnation is processed with *"prescription accuracy"* in Carnation's *own* dairy plants, under Carnation's *own* step-by-step supervision. Painstaking care protects your recommendation when you recommend Carnation.

"From Contented Cows"

The Milk Every Doctor Knows

in Sulfonamide Therapy

Full sulfonamide dosage without any feeling of apprehension over renal complications.

Maximum Therapeutic Efficacy. High initial blood levels are produced rapidly, and are consistently maintained on a dosage of 2 teaspoonfuls every 4 hours.

Maximum Safety. The total solubility of two sulfonamides is significantly greater than either one alone. The solubility is further increased because Aldiazol-M alkalizes the urine, hence reduces the hazard of crystalluria.

Greater Palatability. The pleasant taste of Aldiazol-M invites patient cooperation and, in juvenile patients, forestalls "medicine-time tantrums."

Aldiazol-M is available, on prescription, in all pharmacies. Write for sample and literature.

THE S. E. MASSENGILL COMPANY
Bristol, Tenn.-Va.
NEW YORK • SAN FRANCISCO • KANSAS CITY

SEM CO

Each teaspoonful (5 cc.) of Aldiazol-M provides:

Sulfadiazine (microcrystalline)	0.25 Gm.
Sulfamerazine (microcrystalline)	0.25 Gm.
Sodium Citrate	1.0 Gm.

ALDIAZOL-M

FOR HOME USE!

Terminal Sterilization*

with the NEW Baby-All System

The NEW Baby-All FORMULA & STERILIZER OUTFIT

Now Baby-All not only offers mothers a miniature hospital outfit, including all accessories for preparing baby's formula at home—but a complete *system* for Terminal Sterilization—the very latest hospital technique!

With the Baby-All System of Terminal Sterilization, the formula together with bottles, nipples and shields are all sterilized *in one operation.*

In addition, positive sterilization is assured because, with the new Baby-All Shielded Nurser, the formula and nipple are sealed and the nipple *untouched by human hands* up to the moment of feeding. *Just lift shield and use.*

6 Models — Electric and Non-Electric
Accommodate all standard nursers

Demonstrated to Mothers in Hospitals and Maternity Centers. Sold at Surgical Stores, Infants Departments and Drug Stores.

**Terminal Sterilization technique is recommended by Pediatricians and Health Authorities everywhere.*

Write for further information.

SANIT-ALL PRODUCTS CORP.
Greenwich, Ohio

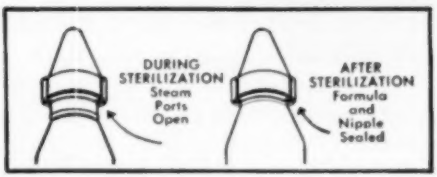
Makers of "Baby-All" Nursery Appliances and "Vapor-All" Vaporizers

Plus

The NEW Baby-All SHIELDED NURSER

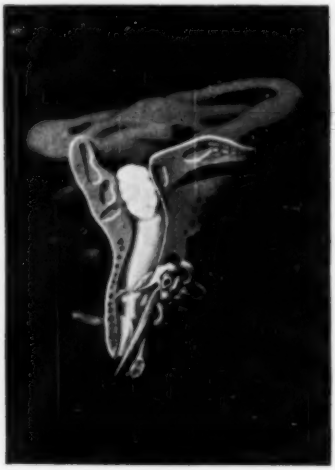
Untouched and *Sterile* to the Moment of Feeding

JUST LIFT SHIELD AND USE



Five-fold attack against

Middle Ear Disease



External Ear Disease

1. **Antibacterial**—local infection effectively attacked by high concentration of sulfa-urea.[1,2]
2. **Debriding**—infection site rapidly cleansed—odors reduced, and waste material removed.
3. **Analgesic**—pain and itching relieved by chlorobutanol.
4. **Fungicidal**—inhibits common fungous contaminants.
5. **Hygroscopic**—absorbs excess moisture, acts as decongestant.

White's Otomide is a stable solution of 5% Sulfanilamide, 10% Carbamide (Urea) and 3% Anhydrous Chlorobutanol in glycerin of high hygroscopic activity. Supplied in dropper bottles of ½ fluid ounce (15 cc.)

White's **OTOMIDE**

Topical Otologic Chemotherapy

WHITE LABORATORIES, INC. Pharmaceutical Manufacturers, Newark 7, N. J.

1. Holder, H. G., and MacKay, E. M.: Mil. Surg. 90:509-518 (May) 1942.
2. Holder, H. G., and MacKay, E. M.: Surgery 13:677-682 (May) 1943.

PIONEER MEAT EATER

(5 years later)

Jennifer Oberg at 5½ months was a participant in Swift's original meat-feeding tests.

Current Clinical Meat Feeding Studies

REPORT No. 3

UTILIZATION OF NUTRIENTS BY PREMATURE INFANTS

These studies were designed to compare the utilization by premature infants of the nutrients in milk, meat-supplemented milk and milk-substitute diets. The balance method is being used to determine the utilization of calcium, phosphorus, iron, fat and nitrogen.

This study is part of an extensive clinical research program now being conducted through grants-in-aid made by Swift & Company.

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QUARTERLY REVIEW

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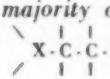
1. Allergy

Antihistaminic Drugs in Pediatric Allergy. *Leo Criep and Theodore Aaron, Pittsburgh, Pa.* J. Pediat. 34: 414-20, April 1949.

Neohetramine (2-(N-methoxybenzyl-N-dimethylamino-ethyl)-aminopyrimidine monohydrochloride) was given to 232 infants and children for symptomatic relief of various allergic disorders. The dose was 25 mg. every four hours for older children. Approximately 50 other children with known allergic manifestations were used as a control group and were given a placebo instead of neohetramine. The best symptomatic results from this antihistaminic drug were obtained in those children with allergic rhinitis, hay fever, urticaria and angioneurotic edema; approximately 50 obtained marked relief. Three children with a physical allergy were all improved. Only about 10% of the patients with either bronchial asthma or atopic dermatitis showed any appreciable improvement. The side reactions were few in number, occurring in about 8% of cases, and consisted of insomnia, restlessness, constipation, rhinorrhea, drowsiness and headache. 3 references. 2 tables.

(There have been many attempts to neutralize, destroy or inactivate histamine in the atopic individual. Such chemical compounds as histaminase, histamine azo-protein, and histamine have all been used without any marked success in treatment of the allergic state. Recently another group of chemical compounds has been introduced and called "anti-histaminics". Clinical as well as animal study has shown that although these substances are predominantly histamine antagonists, other pharmocologic properties exist, such as antiparasympathomimetic (atropine-like), anesthetic and sedative, as well as "spreading factor" inhibition and others. Their palliative value in such allergic states as pollinosis, urticaria and physical allergy is well documented. Schiffrin has recently reviewed the chemical interrelationships among these antihistaminics. With the exception of the pyridinolene derivatives (Thephorin, Roche), the majority of the compounds all have a similar molecular basic structure:  *(may be carbon, oxygen*

or nitrogen. The blocking moieties are attached to X). There are at present 3 chief groups of derivatives with this basic nucleus, of which representative members are: ethanolamine (Benadryl, Parke-Davis), ethylenediamine (Pyribenzamine, Ciba), and Phenylpropylamine (Trimeton, Schering). When using these drugs therapeutically, it is best to start with an ethanolamine or ethylenediamine derivative since these groups usually give the best results. If these are ineffective, then in all probability the other members of their respective groups will probably be without effect also, although exceptions do occur. A good plan would be to try one group of derivatives after another, giving one or two of the compounds in each group a therapeutic trial until an effective agent is found. The pyridinolene group should also be used. Recently enteric coated preparations have been marketed by the pharmaceutical houses. These give a slower but more prolonged action (usually six to eight hours instead of three to four hours with the uncoated pill). If one uses in combination a short acting antihistamine along with a delayed acting preparation, more marked symptomatic relief will be obtained by the atopic individual. These combinations are comparable to the various combinations of insulin used in the diabetic patient. It must be emphasized that the treatment of the allergic child cannot be effectively managed with the so-called antihistaminics alone. Control of environment, removal of sensitizing antigens, treatment and prevention of respiratory infections, and psychotherapy are necessary parts in the treatment.—ED.)

Office Management of the Allergic Child. *Jerome Glaser, University of Rochester School of Medicine and Dentistry, Rochester, N. Y.* Am. J. Dis. Child. 77: 217-43, Feb. 1949.

A detailed medical history is essential in the diagnosis of the allergic child. This should include any peculiar prenatal dietary indiscretions by the mother, and presence of colic, recurrent vomiting and croup early in infancy. The physician should also be thoroughly acquainted with the patient's environment, especially the bedroom and its furnishings, animal pets, food habits, and drug disagreements. A familial history of allergy lends support to the presence of an allergy in the patient.

One should be able to distinguish the non-atopic skin disease from the allergic one. Contact dermatitis and seborrheic dermatitis are frequently confused with atopic dermatitis. The respiratory allergies commonly have their onset between the ages of 2 and 5 years. A pale, edematous nasal mucuous membrane coated with a mucous secretion containing eosinophiles corroborates the diagnosis of allergy. Foreign body in the bronchus, congenital laryngeal lesions, bronchostenosis, and cystic disease of the pancreas should always be excluded in the child with apparent chronic asthma.

For those patients with refractory respiratory allergies, and especially asthma precipitated by infection, irradiation of excessive lymphoid tissue in the nasopharynx may be exceedingly helpful. Antibiotic aerosol therapy may also be initiated. Skin tests merely serve as a guide to the excitant allergens. They are not a necessity when other measures can alleviate the

disease, such as diet or symptomatic and environmental control. Any diet that is given should be simple but nutritionally adequate. Upon completion of the allergic investigation the parents should receive detailed written instructions. Neglecting to do this not infrequently leads to confusion and failure of treatment.

Prophylaxis against sensitization is advisable in those families with severe allergies. Some suggested recommendations are: limiting the prenatal milk consumption of the pregnant woman to a safe minimal amount, with exclusion of eggs and other excitant foods. At birth every effort should be made to breast-feed the infant. If this is not possible, a milk substitute such as soy bean milk may be used. Solids when introduced are offered as single pure foods. Synthetic preparations of vitamin A, D and C are indicated. Prophylaxis against diphtheria, tetanus, and pertussis eliminates the possible future need for serotherapy.

2. Anomalies, Genetics

Studies on Hypoproteinemia, II. Familial Idiopathic Dysproteinemia. *F. Homberger and M. L. Petermann, Sloan Kettering Institute for Cancer Research, Memorial Hospital, New York, N. Y.* Blood 4: 1085-1108, Oct. 1949.

A new syndrome, idiopathic familial dysproteinemia, was observed in 4 adult members of one generation, in 2 of their paternal uncles and in 4 members of the second generation. The syndrome was characterized by hypoproteinemia and abnormalities in the electrophoretic patterns of the blood plasma (dysproteinemia). These were accompanied in the adult by peripheral vascular changes (ulcers of the legs in the men, low oscillometric indices in the women) and edema. Some of the cases had malformations of the thoracic cage and of the occipital hair. The idiopathic nature of the disease was established in some of the patients by study of the nutritional history, the renal, hepatic and adrenal functions, and the failure of improvement when given a high protein diet under controlled conditions. In one case, detailed studies of the mechanisms of plasma protein regulation indicated a disturbance in the production of certain protein components. The disappearance rate of injected albumin and the rate of replacement of acutely withdrawn plasma protein were normal. The clinical and physiopathologic significance of this syndrome and the possible role of genetic factors are discussed. 55 references. 8 tables.

Effect of Diet During Pregnancy Upon the Incidence of Congenital Diaphragmatic Hernia in the Rat. Failure to Produce Cystic Fibrosis of the Pancreas by Maternal Vitamin A Deficiency. *Dorothy H. Andersen, Columbia University, New York, N. Y.* Am. J. Path. 25: 163-85, Jan. 1949.

Using several generations of two strains of line bred rats, maternal vitamin A deficiency did not produce cystic fibrosis of the pancreas in the young, but as the experiment progressed another important concept became

apparent. In a group of female rats receiving the lowest vitamin A intake compatible with reproduction, approximately 80% of the young died within the first two days of life. The incidence of diaphragmatic hernia in this group was 18.9% whereas in the control group receiving adequate vitamin A it was only 0.9%. In a substrain bred from the survivors of the vitamin A deficient litters and receiving a deficient diet, the incidence was 32%. The genetic pattern was not recessive, dominant or sex-linked, but probably was the result of a general tendency within the strain or was dependent on a number of genes.

It was concluded that frequency of expression of a genetic trait may be increased by means of a dietary deficiency during pregnancy. Evidence pointed to vitamin A as the specific nutrient factor in the present experiments. 18 references. 9 tables. 4 figures.—*A. N. Evans*

Effect of Smallpox Vaccination on the Outcome of Pregnancy. *Marjorie T. Bellows, Mary E. Hyman and Katharine K. Merritt, Columbia University Medical School, New York City, N.Y.* Pub. Health Rep. 64: 319-23, March 11, 1949.

A total of 893 pregnant women were observed, of whom 720 were vaccinated against smallpox and 173 were unvaccinated. Three per cent of all pregnancies were found to result in congenital malformations, with no significant differences between the two groups. There were no differences of significance in the incidence of stillbirths, abortions and infant deaths. 6 references. 6 tables.

3. Blood, Hemopoietic System

Hemophilia. A Clinical Study of Forty Patients. *Charles S. Davidson, Robert D. Epstein, George F. Miller and F. H. L. Taylor, Ph.D., Thorndike Memorial Laboratory, Harvard Medical School, Boston, Mass.* Blood 4: 97-119, Feb. 1949.

This is a summary of the clinical manifestations and practical management of 40 patients with hemophilia, all 12 years of age or over, who have been followed during the last ten years. All were males. Most of the patients were of recent European extraction. There were no orientals or Negroes in the series, although hemophilia has been reported in both mixed and presumably full-blooded Negroes, and six probably authentic cases have been described in native Japanese.

There were no deaths in this series from acute blood loss, the popularly supposed cause of death in hemophilia, despite frequent tooth extractions and five relatively serious operative procedures. In 36 of the patients the first hemorrhagic episode was known. Three followed circumcision in the first two months (two at the age of one week). Eight had their first bleeding during the first year of life; 2 with a hematoma of the head from known trauma, 2 from cut lips, one with a hemarthrosis of the knee, one with a hematoma around the knees from crawling, one with multiple hematomata, and one in whom the precise nature of the bleeding had been

forgotten. The remaining 25 patients experienced their first hemorrhagic episode before 13 years of age, 19 before 5 years of age. Excessive bleeding from primary dentition occurred in one instance, whereas 13 of 22 had excessive bleeding from secondary dentition. Hemorrhage following the extraction of permanent teeth is much more frequent.

A discussion is given of hemarthrosis, chronic hemophiliac joint disease, hemorrhage into the skin, subcutaneous tissue and muscles, hemophiliac pseudotumor of the bone, hematuria, pharyngeal and laryngeal hematomas, pulmonary and pleural complications, the acute condition in the abdomen in hemophilia, and the neurologic complications.

To control bleeding episodes it is wise to give human whole blood or plasma not over 24-hours-old unless, in the case of plasma, it has been separated soon after phlebotomy and preserved in the frozen state. Sometimes the bleeding may continue even when the coagulation time is brought to normal with blood transfusions. For acute blood loss of significant proportions whether externally or into the tissues, fresh whole blood not only provides antihemophiliac activity but replaces the loss in both red cell and plasma volume. Plasma, fresh or frozen, is simpler because cross-matching is not required and it is as rich as whole blood in antihemophiliac activity. The reduction in coagulation time usually persists for six to twelve hours at the minimum and then the clotting time gradually rises to its pre-injection level in the course of another six to twelve hours. For continued effect on the coagulation time, blood or its products should be given once or perhaps twice daily during the period of active bleeding.

Fractionation of blood plasma has led to the identification of the antihemophiliac activity with the euglobulins and particularly with Fraction I, according to the nomenclature of Cohn et. al. Fraction III-2 also contains considerable antihemophiliac activity, but is less practical to give. The fibrinogen Fraction I has been chiefly studied *in vivo;* it contains antihemophiliac activity which is not due to fibrinogen itself. In the dosage recommended there have been no significant reactions. Two cases of hepatitis, probably transmitted with the administration of Fraction I, have been observed. There is a great deal of variability in the antihemophiliac activity of Fraction I as now available, and there are instances when fresh whole blood is more effective in reducing the coagulation time. A refractory state to blood and its derivatives has sometimes followed the repeated giving of blood, plasma, or the antihemophiliac globulin fraction. It arises during or promptly after hemorrhagic episode, although occasionally it is spontaneous. The exact nature of this refractory state is still obscure, but may result from production of antibodies to the antihemophiliac substance. "Presently available evidence suggests that this refractory state may occur more frequently following the administration of the antihemophiliac globulin fraction than following the administration of blood or blood plasma. The therapeutic use of the antihemophiliac globulin fraction cannot be advised, therefore, until further studies have eliminated this hazard." For use locally at the site of bleeding, thrombin is preferred

as a coagulant because it directly converts the fibrinogen to form a fibrin clot. Thrombin prepared from both animal and human sources has been effective. The thrombin must be applied directly to the source of bleeding and held there by appropriate pressure dressings. If not, it will merely form a blood clot in the wound, keeping it open. Cautery is not advised. If an operation is needed, the free use of preoperative and postoperative blood transfusions and, when possible, the local application of thrombin are the only important additions to careful surgical technics.

When an acute hemarthrosis occurs in the lower extremity, bed rest is necessary. Compression bandages may be helpful. Aspiration of the fluid blood in the joint is not recommended. As soon as signs of reabsorption of blood appear, cautious active movement up to the point of pain may be begun and gradually increased.

Preventive therapy must begin in childhood as soon as the diagnosis of hemophilia is established. The nature of the disease must be clearly explained to the parents so that they will not only endeavor to prevent hemorrhages but will so orient, care for, and instruct the child that he will grow into as useful and productive a citizen as possible, for only in this way will he be well-adjusted and happy. The child must be taught independence and self-reliance. The hemophiliac patient is subject to frequent bouts of pain which automatically make him the center of attention within the family. Vocational guidance is needed also. 110 references. 1 figure.

The Use of Replacement Transfusion in Diseases Other Than Hemolytic Disease of the Newborn. *M. Bessis, National Center of Blood Transfusion, Paris, France.* Blood 4: 324-327, April 1949.

The author has explored the value of replacement transfusion in a number of diseases, including acute anuric nephritis, acute leukemia, chronic leukemia, lipoid nephrosis, carcinoma, severe icterus, myeloma, lymphosarcoma, acute polyarthritis and acute hypertensive nephritis. The use of exchange transfusion in acute toxemia with anuria was tried on the theory that by withdrawing sufficient toxic products, the patient could be tided over the acute phase. Seven patients were thus treated, all with success.

Exchange transfusion in leukemia is based on the hypothesis that normal persons have an antileukemic substance in their blood. Thirty-eight patients were treated, of whom 20 were children. In every instance the general condition was immediately improved. Thirty clinical remissions occurred, of which 15 also had peripheral blood remissions; of these, 6 had complete clinical peripheral blood and marrow remissions. 11 references. 9 figures.

(This paper serves to remind us that transfusion is an excellent supportive measure. Transfusion therapy of leukemia fell into disrepute in the decade before 1940 *because hemolytic reactions were common and often progressively severe. It now seems that the majority of such reactions were due to Rh incompatibility. There is no way of verifying this with respect to patients who responded unfavorably to transfusions at that time,*

but transfusion reactions in leukemic children have become much less frequent since cross-matching with respect to Rh incompatibility has become routinely practiced.

The author's hypothesis of "antileukemic substances" in normal blood must still be proved. The beneficial effects obtained may have been due entirely to the tonic stimulation of the fresh whole blood which was given in such greater quantities than can be achieved by simple transfusion. The author's recommendation of replacement transfusion for treatment of acute renal failure is not only logical, but probably as safe or safer than other methods, besides requiring no complicated equipment. It cannot be expected to accomplish anything that the artificial kidney will not accomplish.—ED.)

4. Cardiovascular System

Functional Systolic Murmurs in Children. *Charles Messeloff.* Am. J. Med. Sc. 217: 71-78, January 1949.

The common and important pediatric problem of differentiating organic from functional heart murmurs is discussed. In an effort to clarify the problem, a detailed analysis of the auscultatory findings was made in a group of 300 children between the ages of 6 and 14 years whose sole abnormality was the presence of a functional systolic murmur.

All of the children with functional murmurs studied were found to have systolic murmurs; none was detected in diastole. Sixty-nine per cent were best heard in the second and third left interspaces and 31 per cent were loudest at or near the apex. The 17 per cent best heard at the apex presented the most difficult problem in differentiation because of possible confusion with the systolic murmur of mitral insufficiency. A large number (55 per cent) had a musical quality and this is a useful differentiating factor. The vast majority of the functional murmurs studied were of short duration; two-thirds of the total were of faint intensity, one-third of moderate intensity and none was considered loud. Only 15 per cent of the murmurs were strictly localized; all others were transmitted some distance in one direction or another. The recumbent position was found the most productive of functional murmurs. The effect of exercise on the audibility of functional murmurs was variable.

It was concluded that no single auscultatory criterion is uniformly reliable for the identification of functional murmurs and that a complete study of the patient is essential for the accurate differentiation of organic from functional heart murmurs. There is no need to restrict the physical activity of children with functional murmurs. 17 references. 2 tables.

Recurrent Paroxysmal Tachycardia in Infancy. *Frederick K. Sargent and James B. Gillespie, Urbana, Ill.* Arch. Pediat. 66: 437-42, Oct. 1949.

The literature of paroxysmal tachycardia is briefly reviewed with the following conclusions: 1) males and females are equally affected; 2) digitalis is the drug of choice; 3) the condition is not as rare as has been sup-

posed; 4) quinine and quinidine are not particularly effective; 5) Mecholyl should only be used if all other treatments fail.

A case is reported in an infant who has been followed from birth to 21 months. At the age of 12 days, there was onset of rapid grunting respirations, vomiting and irritability. The hemoglobin was 7 Gm. The infant improved with penicillin, sulfadiazine and blood transfusions. A similar episode occurred at 6 weeks of age. An electrocardiogram at this time showed paroxysmal auricular tachycardia with a rate of 320. Quinidine sulfate did not stop the attack. After four doses of digitalis, the rate finally fell to 108. Maintenance doses of digitalis did not prevent recurrence. There were finally no recurrences on maintenance doses of digitalis and quinidine. At 14½ months, both drugs were stopped without recurrence. 12 references. 1 figure.—*Author's abstract.*

The Direction Of The Precordial T Wave In 321 Normal Infants and Children. *Lawrence Kuskin and Louis Brockman, Cumberland Hospital, Brooklyn, N. Y.* Am. J. M. Sc. 218: 65-9, July 1949.

The direction of the T wave of 5 precordial leads was studied on 321 normal infants and children. In CF1 the T wave was inverted in 100% of 129 children from zero through six years inclusive, except for one diphasic wave in a 5-year-old; no upright T was found. In CF2 the wave was inverted in 90% of cases up to 4 years of age. In CF3 the wave followed the same general pattern as in CF2. In CF4 the wave was inverted in only 27 of the 321 children (8.3%), and in 20 it was diphasic; there was no inversion in 50 children aged 12 through 14. In CF5 the wave was inverted in 6% of the cases up to 2 years of age, with no inversions thereafter. Thus leads CF2 and CF3 seem to offer no significant information with respect to the T wave that is not contained in CF1, CF4, and CF5. 11 references. 3 tables. 1 figure.

Circulatory Apparatus in Brucellosis in Children (*El aparato circulatorio en la brucelosis de los niños*). Angel S. Segura. Arch. argent. de pediat. 20: 39-47, July 1949.

In a series of 77 children with brucellosis, the following circulatory symptoms were demonstrated: relative tachycardia unrelated to degree of blood pressure in 51.78%; bradycardia in one patient, but the relation to brucellosis was doubtful; changes in arterial blood pressure in 65.21%, with increased minimal or diminished maximal or differential pressure. The physiopathologic factors involved are discussed. The electrocardiogram revealed no organic lesions due to brucellosis. Endocarditis with an enlarged heart was demonstrated only in a single case (1.5%), and was attributed to brucellosis. 17 references. 4 tables.

Thromboendarteritis With Multiple Mycotic Aneurysms of Branches *Wilson, University of Illinois College of Medicine, Chicago, Ill.* Am. J. of the Pulmonary Artery. *Conrad L. Pirani, Fred E. Ewart and Audrey L.* Dis. Child. 77: 460-73, April 1949.

A case of this rare condition is reported due to emboli originating from chronic thrombophlebitis of the veins of the legs and inferior vena

cava in a 10-year-old boy. Other causes of aneurysms of the larger branches of the pulmonary artery are congenital defects, syphilis, arteriosclerosis, rheumatic fever, bacterial endocarditis and trauma. Tiny aneurysms of the smaller branches often occur in tuberculous and other chronic infectious cavities of the lungs.

The course is insidious although chills, fever, leukocytosis and a tendency to bleed, with frequent hemoptysis and anemia are usually present. At first, the only radiographic findings are increased bronchovascular markings with small irregular densities extending into the lung parenchyma. Later these hilar shadows become larger with fuzzy edges and with many adjacent smaller rounded densities. These findings are not specific but possibly angiography may be diagnostic.

At autopsy these aneurysms are seen to be filled with blood and organizing thrombotic material and are invariably connected with branches of the pulmonary artery. Areas of infarction and atelectasis are also present. The pulmonary veins are normal. The walls of the small arteries are greatly thickened with fibrosis and hyalinization. There is peri-arterial lymphocytic infiltration. The elastic and muscle fibers in the wall of the aneurysm are broken or absent. 10 references. 6 figures.—*L. V. dos Remedios*

5. Chemotherapy, Drugs, Poisons, Physical Agents

Streptomycin Intramuscular Dosage Per Unit Body Weight Correlated With Serum Levels in Infants and Children. *Andrew D. Hunt, Jr. and Mary B. Fell, Children's Hospital of Philadelphia and University of Pennsylvania, Philadelphia, Pa.* Pediatrics 4: 163-69, Aug. 1949.

Clinical experiments were carried out with 18 children to note the serum levels of streptomycin achieved and maintained by intramuscular injections of varying amounts in infants and children, and to determine whether definite dosage per unit of body weight can be depended upon to produce predictable serum levels.

Following single intramuscular injections of 6.6 mg. of streptomycin per Kg. of body weight, the peak serum level was attained in one-half hour, and ranged from 11.5 to 27.0 μg. per ml. At the end of three hours, the level had fallen to between 4 and 9. By four hours, the majority of levels was less than 5 μ/ml.; at 7 hours, less than 3. With single injections of 11 mg. per Kg., the peak levels were higher, ranging from 27 μg. to greater than 35 μg./ml. The peak level seemed more prone to occur at one hour. At three hours, the levels were much higher than in the 6.6 mg./Kg. group, and at six hours were still above 5 μg./ml. With injections of 15.4 mg./Kg. body weight, half the subjects had peak values greater than 35 μg./ml., but at three and one-half and seven hours, were not significantly higher than after doses of 11 mg./Kg. With single injections of 6.6 μg./Kg. given to new-a born infants, the peaks at one half hour ranged from 18.5 to 24.5 μg./ml., identical with the levels obtained in older babies and children, but the levels were maintained longer; at six hours the majority were greater than 5 μg./ml.

This delayed rate of fall in serum levels in the newborns may be explained by dehydration and consequent low urine output. When it is desired to maintain serum levels above 5 μg. over a period of therapy, a dosage of 11 mg./Kg. body weight intramuscularly every six hours may be recommended as satisfactory for children. 14 references. 6 figures.

The Use of Aerosporin (Polymyxin B) in Specific and Nonspecific Enteritis in Infants and Children. *Sidney Ross, Frederic G. Burke, E. Clarence Rice, Harold Bischoff and John A. Washington, Children's Hospital, Washington, D. C.* M. Ann. District of Columbia 28: 441-49, Sept. 1949.

Various antibiotics have been derived from *Bacillus polymyxa* and have been designated as polymyxin A, polymyxin B, polymyxin C, and polymyxin D. Aerosporin (polymyxin B) has been found to possess a high degree of bactericidal specificity against gram-negative organisms *in vitro*. The bacterial spectrum of aerosporin shows a lesser range than that of streptomycin, but among the organisms sensitive to both drugs, aerosporin is many times more active than streptomycin and has the advantage of producing no aerosporin-resistant strains of organisms *in vitro*.

Aerosporin was given a clinical trial in 40 cases of specific and nonspecific gastroenteritis in infants and children during the summer of 1948. There were 18 cases of nonspecific enteritis, 16 of Shigella enteritis, 4 of Salmonella enteritis, and 2 of typhoid fever. Two to 3 mg. per Kg. of body weight were given orally every four hours for periods ranging from four to ten days. The intramuscular dose was 0.5 mg. per Kg. every four hours. With this dosage schedule, blood levels taken during the course of therapy ranged from 1.4 to 4.2 micrograms per milliliter. The aerosporin blood level exceeded the sensitivity of the organism by 20-fold to 50-fold.

Within 48 to 72 hours after initiation of aerosporin orally, there was a noticeable inhibition of the stool bacterial flora which persisted throughout the course of therapy. By two to four days after the drug was stopped, the normal intestinal flora was once again in evidence on stool cultures. Very few of the stool cultures obtained while the patient was receiving aerosporin showed complete inhibition of the coliform intestinal organisms. *Proteus* (*morganii* or *vulgaris*) was the predominating organism, and often the sole organism, after aerosporin was given orally. This is to be compared with the phenomenon observed after oral administration of streptomycin, when often the only organism to survive is *Pseudomonas aeruginosa*.

A high incidence of toxic manifestations was noted after intramuscular administration. Untoward side-reactions included local pain and tenderness at the site of injection, fever, malaise, leukocytosis, eosinophilia, and evidence of renal damage characterized by proteinuria, casts and leukocytes in the urine, and azotemia. After oral administration of aerosporin fewer evidences of toxicity were noted. This is probably because little of the drug is absorbed from the intestinal tract. However, 33% of the patients showed a slight increase in blood NPN during therapy; in one case the

NPN rose to 60 mg. per 100 ml. and in another it went up to 64 mg. per 100 ml. In all instances a normal level was returned to within two to four days after oral aerosporin was discontinued. In contrast to the high incidence after intramuscular administration (75%), only a small number of patients showed transitory albuminuria and microscopic urinary changes after taking the drug orally. Eosinophilia was noted in 12%. Fever, malaise and anorexia did not occur with the oral aerosporin.

Aerosporin proved to be quite effective orally in Shigella enteritis. In typhoid fever and nonspecific gastroenteritis, little if any benefit was observed. The results in Salmonella enteritis were equivocal. 4 references. 2 figures. 2 tables.

Comparison of the Action of Streptomycin, Polymyxin B, Aureomycin and Chloromycetin on *H. Pertussis, H. Parapertussis, H. Influenzae* and Five Enteric Strains of Gram-negative Bacilli. *Hattie E. Alexander, Grace Leidy and Winifred Redman, New York, N. Y.* J. Clin. Investigation 28: 867-70, Sept. 1949.

The data presented suggest a number of clinical applications. Polymyxin B would be the treatment of choice for all of these infections, but its toxic action precludes its clinical use unless the injurious substance can be removed without altering the antibacterial action. A final assessment of aureomycin *in vitro* must await additional factual data. Chloromycetin, because of absence of toxic manifestations, rapid lethal action on *H. influenzae* and *H. pertussis*, and the rarity of resistant mutants warrants a clinical trial in these infections. In *E. coli* and Shigella infections there is reason to anticipate a more rapid elimination of the organisms by the combined action of Sulfadiazine and streptomycin than by aureomycin or chloromycetin alone. In Salmonella and *S. typhosa* infections, either chloromycetin or aureomycin should be a more effective agent than streptomycin. For *Ps. aeruginosa* infections one can expect little therapeutic value from streptomycin, aureomycin or chloromycetin used as a single agent if concentrations in the body fluids do not exceed 10 µg. per cc. The results suggest that the combined action of streptomycin and aureomycin may prove of therapeutic value in *Ps. aeruginosa* infections of body fluids in which concentrations of 50 µg. to 100 µg. per cc. can be maintained with safety. In *H. parapertussis* infections, chloromycetin should prove to be the treatment of choice. 4 references. 4 tables.—*Author's abstract*

6. Clinical Pathology

The Virus Diagnostic Research Laboratory. Considerations of Its Importance in Maintaining Community Health Based on Two Years' Actual Operation. *M. Michael Sigel, Werner Henle, and T. F. McNair Scott, Children's Hospital of Philadelphia and the University of Pennsylvania, Philadelphia, Pa.* Penna. M. J. 52: 372-78, January 1949.

In a large city such as Philadelphia about one-third of the reportable communicable diseases are caused by viral or rickettsial agents, and these agents account for about one-third of the reported cases. If the venereal

diseases are excluded, the cases due to viral and rickettsial agents equal, in number, cases from all other infectious agents. New viral and rickettsial diseases may at any time involve the health of any community. For example, Q. fever caused by *Rickettsia burneti* now has been reported in several states in this country, including Pennsylvania. Rickettsial pox, another new disease, has occurred in a sharp but geographically localized epidemic in a section of New York City.

A virus diagnostic laboratory should be available for every community, so that the health department can fulfill the responsibility of diagnosing communicable diseases and applying protective measures, and for the physicians to give the best possible care to their patients. Diagnostic tests in such a laboratory fall, in general, into two categories: the *in vitro* serologic tests, and the tests for the isolation of the virus. As far as has been ascertained, less than ten virus diagnostic laboratories are in existence in this country, organized by federal or state health departments or by the Army. An analysis is given of the results of diagnostic tests in the virus laboratory of the Children's Hospital of Philadelphia. Of 155 cases of meningoencephalitis whose specimens were tested, a diagnosis of lymphocytic choriomeningitis and mumps meningoencephalitis was made in 7 and 27, respectively, based on serologic results. Only a few specimens were checked for the presence of virus; 2 strains of lymphocytic choriomeningitis and 2 strains of mumps virus were isolated from the spinal fluid of 4 patients. The diagnosis of influenza A was made in 4 cases of respiratory illness, out of 34 patients tested. An outbreak of respiratory disease was also shown to be caused by the virus of influenza type A. Of 70 cases of pneumonia and pneumonitis, there was positive or suggestive evidence of primary atypical pneumonia in 21, as determined by cold agglutination tests. Sera from 2 showed a rise in titer to the influenza A virus. Sera from 5 yielded positive complement-fixation results with the Lygranum antigen. Evidence of Q fever was obtained in two instances by means of the complement fixation test. Three of 6 suspected cases of Rocky Mountain spotted fever gave positive results with the specific rickettsial antigen.

Herpes simplex virus was isolated from 26 of 30 patients with acute stomatitis, from 1 out of 11 cases of recurrent stomatitis, and from 6 and 7 patients with eczema herpeticum. No virus was isolated from 5 persons with aphthous ulcers. Vaccinia virus was isolated from 2 cases of eczema vaccinatum and from two children with vesicular lesions, one of lip and one of penis, which represented unusual sites of accidental vaccination. Thus, the functions of a virus diagnostic laboratory may be considered at three distinct, yet correlated levels: (1) aid in the diagnosis of disease in individual patients; (2) aid in determining sources of infection involving single, family, or neighborhood cases; (3) aid in the diagnosis of larger outbreaks and epidemics. 5 references. 4 tables.

Results of Direct Bacterial Counts on the Cerebrospinal Fluid During the Treatment of Tuberculous Meningitis With Streptomycin (*Risultati dell' esame batterioscopico diretto sul liquor nella miningite tubercolare in corso di terapia streptomicina*). *A. Muratore and G. Pasquinucci, University of Florence, Italy.* Riv. clin. pediat. 47: 66-69, January 1949.

By use of a method for direct microscopic counts of acid fast organisms in the cerebrospinal fluid, it was possible to obtain accurate figures with a degree of positive results equal or superior to culture. The number of bacteria per milliliter of fluid was always greater in cisternal than lumbar specimens. The number was proportional to the chlorides and sugar, somewhat less so to the clinical gravity of the patient. Initial counts ranged from 1.3-13 per ml. These dropped rapidly during intrathecal streptomycin therapy, falling to zero within 3.5-11 days depending upon the number originally present. During the reduction in number, perceptible changes in morphology and staining reaction were noted. These are illustrated. In relapse and in miliary tuberculosis with early invasion of meninges, increased numbers of bacteria were observed before other alterations in the spinal fluid. 3 tables. 4 figures.—*A. M. Bongiovanni.*

(The technique herein used for cerebrospinal fluid examination has previously been described in the "Quarterly Review of Pediatrics." A long tube of small diameter, the bottom of which is in direct contact with a glass slide, is centrifuged at high speed for 20 minutes. All particulate material in several milliliters of fluid is thus concentrated to a small area of the slide. This is stained and examined directly in a short perod of time.—ED.)

Total and Fractionated Blood Glycogen Levels and the Glycogen Content of Marrow in Two Cases of Von Gierke's Disease (*Glicogenemia totale e frazionata e contenuto di glicogeno negli elementi del midollo osseo in due casi di glicogenosi epatica di von Gierke*). *Massimo Orsini, University of Rome, Italy.* Arch. Ital. Ped. e Puer. 12: 357-72, 1948.

Whole blood glycogen levels and fractional determination on plasma, erythrocytes and leukocytes were studied in two children with glycogen storage disease, both confirmed by muscle biopsy. In one patient the whole blood level was elevated, in the other it was normal. However, in both, the erythrocytic content was considerably elevated, the leukocytic diminished, although in the latter patient the plasma level was normal. Marrow cells of the myelocytic series showed high glycogen contents but further investigation indicated this to be the case in normal children. On the other hand analysis of marrow fat showed increased glycogen in this disease. The data are tabulated.

Mean Glycogen Values in mg. per 100 ml.

	Whole Blood	Red Cells	White Cells	Plasma	Percentage of Total RBC	WBC	Plasma
Patient I	33.02	24.59	3.75	4.67	74.3	11.4	14.3
Patient II	12.6	8.01	2.84	1.93	63.5	23.0	15.3
Normal	9.69	4.16	3.90	1.72	43.1	39.8	17.4

20 references. 2 tables.—*A. M. Bongiovanni.*

The Urinary Excretion of 17-Ketosteroids and of Corticosteroid-like Hormones by the Newborn Infant. *E. M. A. Day, Royal Prince Alfred Hospital, Sydney, Australia.* M. J. Australia 2: 122-24, July 31, 1948.

The 17-ketosteroid excretion in the urine was determined in 12 normal male newborn infants. The levels as a rule were low (0.13-0.67 mg.) and did not suggest an excessive androgenic function of the adrenal cortex. Four babies delivered by cesarean section seemed to excrete comparatively large amounts (1.25-3.37 mg.).

The amount of corticosteroid-like hormone excreted in the urine of seven normal male newborn infants approximated in value per gram of adrenal tissue the figures given for normal adults.

One instance of transient chyluria in an apparently normal baby was incidentally noted. 12 references. 2 tables.

7. Endocrine System

Genetic and Endocrine Factors in the Growth and Development of Childhood and Adolescence. *Lawson Wilkins, John Hopkins University School of Medicine, Baltimore, Md.* Recent Progress in Hormone Research. Proceedings of the Laurentian Hormone Conference, 1948. pp. 391-410. Edited by Gregory Pincus, Volume II. Academic Press, $8.00 (Summarized by permission of the publisher).

Variations from the normal patterns of growth and development may depend upon (1) genetic factors acting directly upon the end-organs; (2) constitution differences in the endocrine system of individuals; (3) specific disorders of the endocrine glands or the midbrain. Somatic growth is influenced by three hormones—the growth hormone of the pituitary, the thyroid hormone, and androgen derived either from the testis or the adrenal. Each of these can stimulate protein anabolism and increase nitrogen retention. The effects of thyroid on growth and development are most obvious in earliest childhood. The growth spurt seen in adolescence is undoubtedly caused by androgen and can be simulated by testosterone therapy when there is pituitary deficiency. Much remains to be learned about the relative effects of these hormones in initiating growth and in bringing it to an end through epiphyseal fusion.

Sexual development in the male is probably dependent entirely on androgen. In the female, estrin develops the breasts, labia minora, vagina uterus, and tubes, whereas androgen causes the growth of sexual hair. Progestin stimulates the acinar structure of the breast. There may be a number of different androgens arising either from the adrenal or the testis which have differing biological actions, some affecting more specifically the sexual hair and others the genital organs.

Abnormalities in the hormonal regulation of growth and development may arise from three different sites of control: (1) the midbrain, which stimulates the pituitary; (2) the anterior pituitary itself; and (3) the thyroid, adrenals, and gonads. The same symptoms of either excessive or deficient function may be caused by lesions at any of these three levels.

Different types of endocrine disorders are encountered at different age periods (Table I). Cretinism or congenital hypothyroidism is the most common endocrine disturbance encountered during the pre-adolescent period. In the adolescent period the great problem is to differentiate patients having variations in the usual time or pattern of adolescent development and growth from those with true endocrine defects which result in permanent infantilism or dwarfism. The diagnosis of Froehlich's syndrome should be limited to cases having midbrain lesions which cause other manifestations such as diabetes insipidus and true sexual infantilism.

Thyroid deficiency is the commonest endocrine disorder of childhood. There is always slowing of all physical and mental activity, characteristic retardation of growth and development, and changes in the skin, hair and subcutaneous tissues.

Sexual precocity along the isosexual pattern may be due to neurogenic, pituitary, gonadal or adrenal causes. In cases due to a brain lesion or to idiopathic early activity of the pituitary (the "constitutional type") there is a normal but early sexual development with maturation of the gonads and gametogenesis. The output of sex hormones does not exceed the normal adult level. When the cause is an interstitial cell tumor of the testes, granulosa cell tumor of the ovary, or adrenal neoplasm or hyperplasia in a male, there is excessive secretion of sex hormone causing early secondary sexual changes but the patient's gonads fail to mature or function normally.

Sexual inversion, which is the development of the female along male lines or of the male along female lines, may be due to any of several causes:

A. Due to endocrine dysfunctions:

Masculinized Female	Feminized Male
Adrenal hyperplasia — embryonic (urogenital sinus)	Adrenal Tumor—feminizing type (gynecomastia)
Adrenal tumor or hyperplasia—postnatal (separate vagina and urethra)	Testicular tumor — chorioepithelioma (gynecomastia)
Ovarian tumor—arrhenoblastoma (does not occur under 15 years)	

B. Intersexuality probably due to abnormal mixtures of male and female genes —Genetic Intersexes.

Probably the most common type is female pseudohermaphroditism caused by hyperplasia and over-secretion of the androgenic elements of the adrenal beginning in early embryonic life. These infants have a penis-like phallus instead of a normal small clitoris, a persistent urogenital sinus but with normal ovaries and infantile tubes and uterus. Since the adrenal continues to secrete excessive amounts of androgen after birth, these patients develop pubic hair at 2 to 4 years of age and become progressively more virilized as they grow older. There is a tendency for the condition to occur among sibs in the same family, causing macrogenitosomia precox in males and pseudohermaphroditism in females. In contrast, a virilizing tumor of the adrenal in the female developing after birth, leads to virilization with hypertrophy of the clitoris, premature or excessive production of sexual hair, and masculinization, but the embryonic differentiation is normal so that there is a separate urethra and vagina.

A large proportion of the patients coming to an endocrine clinic have no true glandular disorder but merely constitutional variations in the usual patterns of adolescent development and growth. The pituitary sets off the changes of puberty by beginning the production of gonadotrophic and probably "andro-adrenotrophic" hormones, and there are wide variations in the age when this pituitary activity begins and the speed with which changes proceed. Irregularities in the balance of the hormones may account in girls for the menstrual irregularities so common in adolescence, and in boys for adolescent gynecomastia, and for other irregularities as well. In cases of delayed adolescence and stunted grow, puberty and growth may be accelerated by chorionic gonadotrophins or the sex hormones, but such children would develop quite normally within a year or two if left alone. The prolonged use of androgen or estrogen at this period might prevent the development of the patient's own gonads.

Sexual infantilism persisting well beyond 16 or 17 years may be due to a number of different causes, as shown in the accompanying table:

Sexual Infantilism

	Male	Female	F.S.H	Sexual hair	Stature
Neurogenic	Froehlich's	Froehlich's	—	+or—	Stunting obesity
Pituitary with dwarfism	Pituitary dwarf	Pituitary dwarf	—	0	Dwarf
without dwarfism	Specific gonadotrophic deficiency	Specific gonadotrophic deficiency	—	+	Normal or eunochoid
Gonadal		Ovarian agenesis	+++	+	Dwarf
		Castration—surgical	+++	+	Eunochoid
	Hyalinization of tubules and interstitial cells? Klinefelter-Heller		+++	±	Normal or eunochoid

In the study of a child with dwarfism, it is necessary to look for the bone diseases or metabolic disturbances which may lead to stunted growth and hypothyroidism. There is a group of dwarfs showing none of these disturbances, who are symmetrical in body build and not especially infantile in skeletal proportions. Some remain sexually infantile. In those whose sexual development progresses normally without other evidences of pituitary deficiency, it seems that genetic factors are responsible. 39 references. 3 figures. 6 tables.

8. Eye, Ear, Nose and Throat

Chorioretinopathy Associated with Other Evidence of Cerebral Damage in Childhood: A Syndrome of Unknown Etiology Separable from Congenital Toxoplasmosis. *Albert B. Sabin and Harry A. Feldman, Children's Hospital Research Foundation and University of Cincinnati College of Medicine, Cincinnati, Ohio.* J. Pediat. 35: 296-309, Sept. 1949.

New dye and complement fixation tests are sensitive quantitative indicators for the diagnosis of congenital toxoplasmosis. With these tests it was found that chorioretinopathy associated with other evidence of ocular and cerebral damage or defects as encountered in infancy and early childhood is often not due to toxoplasmosis. When infantile chorioretinopathy was associated with positive quantitatively significant serologic tests for toxoplasmosis, the incidence of cerebral calcification in roentogenograms of the skull was approxmately 90% of 23 cases. In contrast, among 20 children with chorioretinopathy and negative serologic tests for toxoplasmosis, the incidence of cerebral calcification was only 5%. The syndrome of infantile chorioretinopathy without associated cerebral calcification or evidence of toxoplasmic infection probably has multiple causes. The available data suggest defective development rather than destructive necrotic lesions as the mechanism of origin.

Attention is directed to the occurrence in infancy of a syndrome characterized by extensive destruction of brain tissue, hydrocephalus, diffuse cerebral calcification, chorioretinopathy and bizarre "degenerative" changes in the small blood vessels. This can be distinguished from congenital toxoplasmosis only by serologic tests or pathologic study. The data indicate that normal children have been born subsequently in all instances in which the diagnosis of congenital toxoplasmosis could be made with certainty on pathologic or quantitative serologic grounds. 21 references. 4 figures. 3 tables.

Ocular Defects in Still's Disease. *H. E. Hobbs.* Proc. Roy. Soc. Med. 42: 755-56, Sept. 1949.

A quiet chronic iritis is the usual, and may remain the only ocular lesion in juvenile rheumatoid arthritis, but an exudative form has been reported and synechia and cataract are known to occur. The case demonstrated was a girl of 10 in whom Still's disease had first been diagnosed at the age of 3. Her eyes were first known to be affected at the age of 4 and at the present time her visual acuity is reduced to 6/36 in the right and 6/18 in the left eye with lenses . Both lenses show anterior subcapsular opacities with fine granular deposits from old iritis, although the pupils are mobile. Both corneae show opacities in the interpalpebral area which are seen under the slit lamp microscope to be localized to Bowman's membrane and the superficial corneal lamellae, and to have the faintly brownish turbidity with fenestrations characteristic of band-shaped opacities. The author draws attention to the fact that ocular lesions tend to appear early

in Still's disease and may precede the joint symptoms. The lesions should be regarded as a separate ocular response to the infective agent rather than as a secondary "rheumatic" manifestation. 13 references.—*Author's abstract.*

Maxillary Sinusitis in Children. A Treatment Technique. *R. H. von der Borch, N. Adelaide, S. Australia.* Clinical Reports Adelaide Children's Hospital 1: 216-17, May 1949.

The frequency of maxillary sinusitis in children is emphasized, and a method of treatment advocated which is simple, safe and expeditious, being undertaken at the same time as tonsillectomy is done, and in the same "head back" position. The method consists of the introduction of specially prepared self-retaining rubber or plastic tubes into the antra, through which treatment can be undertaken, using penicillin or other solutions for the appropriate time. It is pointed out that many children undergoing tonsillectomy for repeated "colds" have coincident sinusitis which should be treated at the same time.

9. Gastro-intestinal System

Intestinal Intubation in the Field of Pediatrics. *J. Albright Jones, Children's Hospital of Philadelphia, Philadelphia, Pa.* Pennsylvania State M. J. 52: 958-66, June 1949.

The value of intestinal intubation in the diagnosis and management of children with digestive disturbances is discussed on the basis of experence with 350 intestinal intubations. There are several major indications for intestinal intubation in pediatric patients, the most important being to obtain duodenal juice for enzymatic analysis in patients with symptoms of the celiac syndrome. Two cases are described in which the value of pancreatic enzymatic analysis is illustrated.

Most infants and children can be intubated without great difficulty. In a small percentage of patients hours of tedious work may be necessary before one can pass a tube through the pylorus. The author discusses various types of equipment he has experimented with in order to increase the percentage of successful intubations. The most satisfactory tube proved to be a No. 12 Miller-Abbott tube modified as follows: the balloon on the end of the tube is removed and a blind metal tip is substituted. Two small balloons, each about one-half the size of the original balloon, are attached, one being placed an inch and a quarter, and a second balloon two and one-half inches proximal to the tip of the tube. Two balloons were employed on the hypothesis that two separate masses might be better propelled along the stomach than a single one. Also, the tube can be manipulated so that the tip is in the first part of the duodenum, with the two balloons on either side of the pylorus. Inflation of the balloons with the tube in this position aids in fixing the tube and in decreasing the flow of gastric juice through the pylorus. Although such a tube is more expensive than a plain tube, and

difficult and costly to keep in proper repair, it is most helpful in the intubation of infants under one year of age. In such infants this tube will pass the pylorus more quickly than will a plain (Levin) tube.

Ninety-six intubations have been attempted with the double balloon tube. Of these, 76 (80%) proved successful: 1) in 31 patients less than a year old, the average length of time required for the tube to enter the duodenum, as indicated by first appearance of alkaline juice, was 43 minutes; 2) in 13 patients, successful intubations were accomplished in less than one-half hour, and 3) in 45 cases over one year of age, the average time for successful intubation was 75 minutes.

The technic of intestinal intubation is described in detail, with practical suggestions as to aiding the tube in its passage through the pylorus. The advantages of simultaneous aspiration of gastric and duodenal juice is pointed out. The laboratory methods used in the analysis of duodenal juice are described briefly. 24 references. 5 figures.

(*Despite the difficulties of the procedure and the technical skill required, duodenal drainage is still the most accurate means of making the differential diagnosis between cystic fibrosis of the pancreas and celiac disease. Newer and perhaps simpler methods have been proposed, such as stool analysis, blood absorption curves for various ingested substances, and for contained enzyme of supposed pancreatic origin, but these must wait the sustained test of time in the hands of many workers before their validity can be unreservedly accepted.*—ED.)

Proteolytic Enzymes of the Premature Infant, with Special Reference to His Ability to Digest Unsplit Protein Food. *Stephen Madey and Joseph Dancis, New York University-Bellevue Medical Center, New York, N. Y.* Pediatrics 4: 177-82, Aug. 1949.

A study was carried out to determine the capacity of premature infants to secrete duodenal (pancreatic) trypsin, as an indicator for the possible need for feeding protein hydrolysates to such infants. Duodenal drainage studies were carried out with 16 premature infants weighing between 1120 and 1790 Gm. The samples collected were tested for trypsin by the Fermi-Andersen gelatin liquefaction method. All drainage fluids produced good liquefaction with the equivalent of 0.01 ml. duodenal juice and 12 of the 16 samples showed activity with 0.005 ml. These findings indicate normal trypsin values approximating 200 viscometric units per ml. or better.

These laboratory findings were supplemented with studies on the weight gain of 16 premature infants, using alternate supplementation of a basal cow's milk feeding with whole casein and casein hydrolysate. The gain in weight of infants whose diet was supplemented with casein hydrolysate was found to be no better than that of infants supplemented with whole casein. From these two lines of evidence the conclusion was drawn that it is not necessary to supplement the diet of the premature infant with split protein. 17 references. 3 figures. 1 table.

Pancreatic Enzymes: Normal Output and Comparison of Different Methods of Assay. *Peter V. Véghelyi, Hungarian Petrus Pazmany University, Budapest, Hungary.* Pediatrics 3: 749-63, June 1949.

The study of pancreatic enzymes recoverable in the duodenal juice has yielded no uniformity in the results. The discrepancies are attributed chiefly to the fact that different investigators have employed different methods of estimation. The author has tried to clarify the lack of uniformity by making parallel observations with different methods of assay on a group of healthy children. Forty-seven healthy children, 21 boys and 26 girls, were examined, aged from 11 months to 10½ years.

For amylase, Wohlgemuth's iodometric titration and Ågren and Lagerlöf's method were compared. The means were 512 ± 22 Wohlgemuth and 0.89 ± 0.03 Ågren-Lagerlöf units. Both methods were found serviceable and parallel estimations corresponded well. The first was more simple, whereas the second gave more uniform results.

For trypsin, Michaelis' casein technic, Ågren and Lagerlöf's method, and the Fermi gelatin method as modified by Andersen and Early were compared. The mean for the Michaelis' method was 447 ± 15, for the Ågren-Lagerlöf method 44.0.1 ml. ± 1.2 (2.2 ± 0.1 units) and for the Fermi-Andersen method 4 ± 0.1. All showed good correlation. Ågren and Lagerlöf's procedure was the most accurate of the three, but more complicated.

For lipase, Willstätter's titration of standard olive oil, Rona and Michaelis' stalagmometric method, Leubner's photometric triolein method and Freudenberg's titrimetric method were compared. The Michaelis method proved unreliable. The means were 26.4 ± 0.6 with the Willstätter method, 35 ± 1.3% with Leubner's method, and 5.3 ± 0.1 with Freudenberg's method. Willstätter's method gave the most consistent results in parallel determinations. The Leubner method showed considerable variations in the regions below 25% and above 50%. Freudenberg's method was the simplest and easiest to carry out, although the use of different milks influenced the results considerably.

The recommendation is made that the lowest values encountered in healthy subjects be regarded as threshold values and results below them be considered pathologic. It is proposed to take the following values as 100%:

Amylase: 160 Wohlgemuth; 0.33 Ågren-Lagerlöf units

Trypsin: 128 Michaelis; 0.8 Ågren-Lagerlöf units; No. 4 tube (Fermi-Andersen)

Lipase: 13 Willstätter units, 8% (Leubner), and 3.0 Freudenberg unit.

Values below these figures should be reported in terms of percentage.

A strict parallelism in the output of the three enzymes was observed in every child. This also held true following stimulation by pilocarpine and inhibition by atropine. All variations happened simultaneously with each enzyme. Fluctuations occurred but these showed no periodicity and were due to dilution of the pancreatic juice by bile. Six children were given unbalanced diets to determine whether the production of enzymes was adapted to the food given. No relationships were found. 21 references. 6 tables. 3 figures.

Pancreatic Function in Scarlet Fever. *Peter V. Véghelyi, Budapest, Hungary.* Pediatrics 4: 94-101, July 1949.

Determinations of enzymes in the duodenal juice and in the blood were undertaken in 32 children suffering from scarlet fever. The tests were done every second or third day in the first three weeks; and then, if no abnormal conditions were found, every five to seven days thereafter.

In 26 children some abnormality of pancreatic enzyme function could be demonstrated. Changes in all three enzymes were encountered in 14, in both trypsin and lipase in 6, in trypsin alone in 1, and in lipase alone in 5 patients. Thus, there was a dysfunction of the amylase output in 14 children, of trypsin in 21, and of lipase in 25 children. In 10 children the dysfunction showed a regular pattern. In the first days, the pancreatic enzymes were above normal while those in the blood were decreased. After the first week, the activity of enzymes in the duodenal juice decreased and the blood enzymes attained high levels. Conditions returned to normal in the fourth week. In the rest of the children incomplete dysfunctions or only hypofunction was noted. Of the three enzymes, the output of lipase was affected most frequently and most severely. These dysfunctions were not related to fever or complications. In two patients the symptoms pointed to an inflammation of the pancreas.

The changes in intensity of secretion were very different from the strict parallelism which exists in the secretion of the three enzymes in normal children. 23 references. 1 figure. 3 tables.

Therapy and Prognosis of Fibrocystic Disease of the Pancreas. *Dorothy H. Andersen, College of Physicians and Surgeons, Columbia University, New York, N. Y.* Pediatrics 3: 406-17, April 1949.

This is a discussion of the respiratory lesion in fibrocystic disease of the pancreas, with a summary of the congenital and nutritional hypotheses. The persistent bronchitis which so often develops is the usual cause of death. In most cases it begins in the first half-year of life. The bronchial secretion is viscous and may be abundant, accounting for the pertussis-like cough and occasional atelectasis. Cultures taken early in the course of the disease grow Staph. aureus hemolyticus in nearly every case. The infection often produces only mild toxic symptoms, and spreads to the lung parenchyma only in the terminal phase. Death is commonly by asphyxia from pus filling the bronchi.

There is no morphologic evidence that a specific congenital abnormality exists in the bronchi or in their secretion. In microscopic appearance the mucus resembles that seen in other clinical conditions, notably asthma. A physiologic congenital abnormality of the bronchi is possible but unproved. Dietary therapy improves the growth curves of infants diagnosed and treated prior to infection. The absorption of vitamin A and presumably of other fat-soluble specific substances is affected by diet, and may be significantly related to the disease.

Twenty-two cases of fibrocystic disease without clinical evidence of respiratory infection are doing well. Eleven of these have received penicillin. Most of the 22 patients were started on dietary therapy before cough had been present for as long as two months. Their satisfactory progress is presented as evidence in favor of a nutritional factor in the etiology of the respiratory infection, even if nutritional deficiency is not solely responsible.

The diet given to affected infants under 6 months of age (and also to infants born with meconium ileus) is made up from a powder consisting of protein milk 50 parts, amino acids (casein hydrolysate) 5 parts, banana powder 20 parts and glucose 20 parts, prepared by Mead Johnson Company under the name of special formula No. 235. Along with this are fed supplements of vitamin A, D, and B complex, and pancreatin. 4 references. 7 figures. 5 tables.

Abnormal Rotation of the Intestine. *S. van Creveld, Amsterdam, Netherlands.* Neder. Tydschr. v. Geneesk. 92: 3914-22, Nov. 27, 1948.

Children admitted to hospital with a diagnosis of psychogenic or cyclic vomiting are often found to have an intermittent volvulus of the intestine. This volvulus is caused by malrotation of the intestinal tract during fetal life, especially in that part supplied by the superior mesenteric artery. Volvulus of the small intestine is in most cases accompanied by an abnormal rotation of the colon, so that the appendix is in the upper left abdomen.

Four children are described, 19 days, 4, 7 and 9 years old, with abnormal rotation of the intestine; at operation the volvulus was removed and the bands were divided. Three children recovered completely; the fourth child, who was operated upon under difficult circumstances during the war, died after the operation in shock.—*Author's abstract.*

10. Genito-urinary System

See Contents for Related Articles

11. Growth, Puberty, Adolescence

The Effect of Milk Supplements on the Growth of Children with Nutrition Failure. *Tom D. Spies and Samuel Dreizen, Hillman Hospital, Birmingham, Ala.* J. Pediat. 34: 393-413, April 1949.

Eighty-two children were paired on the basis of history or evidence of nutritive failure, sex, roentgenographic analyses of the hand, wrist and forearm, phase of growth, general body type, freedom from contagious or infectious disease and allergy to cow's milk, accessibility of the home and cooperative attitude of the parents. One child in each pair was given a supplement equivalent to one quart of either reconstituted whole milk (4¼ ounces of milk solids) or reconstituted nonfat milk (3 ounces of milk solids) each day, six days a week, for a period of twenty months. Twenty-two children (9 boys and 13 girls) received the nonfat milk, while 19 chil-

dren (9 boys and 10 girls) received the whole milk. No changes, except those which were completely voluntary, were made in the routine of the children other than the addition of the milk supplement to the daily dietary of one child in each pair. Each child, with the exception of one child in the control group, was studied for an additional twelve months after the supplement was discontinued.

This report is concerned with the growth progress of both groups of children during the milk and postmilk phases of the investigation, as measured by the Wetzel Grid. The findings include only those derived from the individual child in each pair rather than from each pair as a single unit. It was found that 73% of the children who received the milk supplement improved in their rate of development, 54% improved in their speed of development, 34% improved in their direction of development, and 27% improved in their quality of growth during the supplementation phase of the study. In contrast, 39% of the control children improved in their rate of development, 7% in their speed of development, 15% in their direction of development, and none in their quality of growth during the same period. Only 27% of the children who improved their rate of development, 27% of the children who improved their speed of development, 36% of the children who improved their direction of development, and none of the children who improved their quality of growth while on the milk supplement continued to do so when the supplement was withdrawn.

The number of children involved was too small to render a distinction between the relative effectiveness of the whole and nonfat milk supplements on the basis of the Grid data alone. The Wetzel Grid proved to be a useful method for measuring certain changes in the growth progress of children with chronic nutritive failure when a known amount of milk was added to their daily dietaries. The growth of each child, however, is a phenomenon specific for that child. Such aids as the Wetzel Grid must be interpreted in the light of the sum total of information which can be acquired from the large variety of factors which influence growth progress. —*Author's abstract.*

12. History, Biography, Antiquities

See Contents for Related Articles

13. Infectious Diseases, Acute

Safety and Effectiveness of Multiple Antigen Preparations in a Group of Free Living Children. *V. K. Volk, Saginaw, Mich.* Am. J. Pub. Health 39: 1299-1313, Oct. 1949.

Three multiple antigen preparations were administered to 802 children, the great majority of whom were over 5 years of age. The response to diphtheria antigen proved superior with multiple antigen vaccines to diphtheria antigen alone. In children having an initial antibody level less than 0.001 unit per cc., the response to a single dose was inadequate, two

to three doses giving far superior response. With antibody titers above this level the response to a single dose was excellent. There was a significant drop in titer (to 83%) at 30 months.

The response to a single dose of tetanus antigen in multiple vaccines was less than 0.05 units with one dose. Three doses showed the most satisfactory levels but there was a reduction of 88% in 30 months. This suggests the need for tetanus boosters every 24 to 36 months.

With pertussis there was a positive agglutination in 23% of children 5 to 8 months after a single injection of triple vaccine. After three doses this figure rose to 55%. There was a marked reversion to negative agglutination after 24 months. Multiple antigen preparations containing 15,000 million pertussis organisms per cc. were superior to those with only 5,000 million. 9 references. 4 tables. 6 figures.—*A. M. Bongiovanni.*

(*These observations supplement and in general agree with those of Bell, J.A.M.A.* 137: 1276, 1948. *This is particularly true as regards the superiority of response to diphtheria antigen in multiple vaccine preparations.*—ED.)

Isolation from Cases of Infantile Diarrhea of a Filterable Agent Causing Diarrhea in Calves. *J. S. Light and H. L. Hodes, Johns Hopkins University, Baltimore, Md.* J. Exper. Med. 90: 113-36, Oct. 1949.

The isolation of a filterable agent in connection with 6 institutional outbreaks of infant diarrhea was first reported by the authors in 1943. The details are presented in the current communication. The diarrhea occurring in the groups studied was limited to the neonatal age, did not spread to other age groups, showed a high morbidity and at times mortality, and was not associated with stomatitis. All stools used in the study were cultured and showed no known bacterial diarrhea-producing agents.

In the first 2 outbreaks, intranasal, intraperitoneal and intracerebral inoculation of stools, blood and nasopharyngeal washings produced no significant disease in mice, hamsters, guinea pigs, rabbits or cotton rats. Pooled unfiltered material from the third outbreak, previously frozen, was inoculated intranasally and subcutaneously into a 3-week-old Guernsey calf. Bloody mucoid diarrhea was produced. Filtered bacteria-free stool suspension from the fourth outbreak was introduced intranasally into a calf, which subsequently developed diarrhea (second day) and died on the fifteenth day. Subcutaneous administration of blood specimens from a patient did not produce disease in another calf. This course of events was again observed in two further epidemics.

Stool suspensions (filtered and unfiltered) from infected calves submitted to serial passage produced the disease in 72 of 75 calves. Four successive passages with filtered specimens were accomplished by intranasal inoculation. The gastro-intestinal tract is probably the portal of entry since introduction of material via stomach tube in one animal produced disease. Healthy calves simply exposed directly to infected animals uni-

formly developed the disease. Immunity was demonstrated by the failure of 8 recovered calves to respond to re-inoculation. Sera from calves and infants (2 of 4) recovered from the illness were protective. The agent was apparently inactivated by boiling 10 minutes, but not 5, or by heating at 90° C. for 1 hour, but not at 70° C. 22 references. 1 figure. 7 tables. —*A. M. Bongiovanni.*

(Buddingh and Dodd have previously reported a virus isolated from infants with diarrhea and stomatitis which caused reproducible lesions on the rabbit cornea. In the present study, as was appreciated by the authors, the agent in question might occur in the stool of normal infants, although this seems to have been ruled out. Activation of a latent virus in calves, provoked by the experimental conditions, is discredited on the basis of protection tests. These observations of Light and Hodes are the most significant to be reported with respect to a demonstrable infectious agent in the so-called epidemic diarrhea of the newborn. Hundreds of other attempts to transmit the disease to animals have proved unsuccessful.—ED.)

Spread of Diarrhea of Unknown Origin in a Ward for Infants. *John Judd Shields, St. Christopher's Hospital for Children and Temple University School of Medicine, Philadelphia, Pa.* Am. J. Dis. Child. 78: 217-25, Aug. 1949.

In the eighteen-month period from Jan. 1, 1946 to June 30, 1947, two distinct outbreaks of diarrhea occurred on a hospital ward for sick infants. It appeared likely that in 33 instances the diarrhea was acquired by cross infection within the hospital. Ten of these infants died in spite of energetic treatment with reduced food intake, intravenously and subcutaneously administered fluids, and chemotherapy with Sulfadiazine. The mode of spread of the diarrheal infection could not be discovered. Greatest suspicion was directed to transmission by personnel, although airborne infection was not excluded. Repeated cultures of formulas did not reveal pathogenic organisms or heavy contamination with saprophytes. Many infants who received formulas made in the same milk room did not have diarrhea, and the cases appearing in the hospital did not develop as simultaneously as would be expected if contamination of formulas were a cause. Most of the attacks beginning in the hospital appeared to have spread from infants ill with diarrhea who were admitted to the regular ward for treatment. There was little cross infection after infants with diarrhea were kept in a ward separately set up for that purpose. New infants were admitted to that special ward with some misgivings, however, since an infant with diarrhea resulting from one etiologic agent might be exposed to a different intestinal pathogen.

"The best solution to the problem of cross infection appears to be the provision of facilities for complete individual isolation of all infants admitted to a hospital ward for infants." 6 references. 2 tables.

Pertussis Treated with Chloramphenicol. *Eugene H. Payne, Parke, Davis and Co., Detroit, Mich. and Miguel Levy, Gaston Moscoso Zamora, Moises Sejas Vilarroel, and Eduardo Azbalaga Canelas, Cochabamba, Bolivia.* J. A. M. A. 141: 1298-99, Dec. 31, 1949.

Experience is summarized with chloramphenicol (chloromycetin) in the treatment of 48 cases of pertussis during a severe epidemic from July to October 1949 in Bolivia. Pertussis in this region is of high virulence, with a death rate among children said to be double that encountered in North America. In each case the diagnosis was confirmed by cough plate or swab cultures.

The drug was given in varying doses, depending on the weight of the child. It was administered by mouth in most cases, but at times was given as a rectal suppository or intravenously when dissolved in propylene glycol. The first initial dose was 0.25 Gm. as a rule, regardless of age. Maintenance doses of 0.125 to 0.25 Gm. were then given, two to four times a day, until a total of 1.75 to 4.00 Gm. was reached. Fever, when present, disappeared during the second day of treatment. A decrease in the number of paroxysms could usually be observed by the third day. The paroxysms disappeared completely by the third to sixth day after treatment was begun. A light cough, thought to be due to residual inflammation in the tissues, often persisted for a few days thereafter. One case had a relapse of short duration a few days after treatment was discontinued. Spot check of patients by cough plate one week after treatment indicated that all were free of infection. A few children under 6 months of age had mild symptoms of nausea. These had received the drug mixed with substances such as honey or orange juice, instead of in capsule form.

It was concluded that chloramphenicol (chloromycetin) is an effective agent for the treatment of pertussis. When given as a rectal suppository or intravenously, the results are equal to those with oral medication. Untoward reactions were negligible. 1 table. 7 case reports.

Primary Atypical Virus Pneumonia in Children (*Primaire atypische virus pneumonie bij kinderen*). *D. P. R. Keizer.* Nederl. tijdschr. v. geneesk. 93: 2517-24, July 23, 1949.

In 41 of 65 cases of primary atypical ("virus") pneumonia in children it was possible to make a study of the clinical, laboratory and roentgenologic findings. The results indicated that children under 4 years of age are not exempt from this infection and that males and females are equally affected. The cold agglutination test is not a specific test. As a rule more than one member of a family is affected. When the cold agglutination test yields negative results in a child suffering with this disease, other members of the family will usually react negatively. When the cold agglutination test shows a negative result, relapse is unlikely. The complications encountered included pleurisy, acute hepatitis, endocarditis, acute myocarditis, meningeal encephalitis, acute hemorrhagic nephritis, benign reticulosis, nonpurulent maxillary sinusitis, arthritis, otitis media, acute adrenal

insufficiency and skin changes. There were two cases of strophulus and one case with a Stevens-Johnson syndrome. There were no fatalities. Gamma globulin appeared to have a favorable effect on the general malaise in 11 cases, but did not prevent relapse. In 17 cases, the primary lesion was in the right lung with 12 in the inferior lobe, 1 in the middle lobe and 4 in the superior lobe. In 8 cases the primary lesion was in the left lung with 7 in the inferior lobe and 1 in the superior lobe. In one case the pneumonia was believed responsible for reactivation of tuberculosis. 26 references. 1 table.

Fever Therapy of Acute Anterior Poliomyelitis (*Die Fieberbehandlung der Poliomyelitis ant. acuta*). *H. Gattner and H. W. Koeppe, Halle/S.* Ther. Gegenwart 7: 204-09, 1949.

It has been observed that quite frequently paralysis does not develop in anterior poliomyelitis until after the fever has subsided or becomes rapidly progressive after defervescence. If the bodily defense reaction of fever can delay the development or check the progress of paralysis it would seem logical to prolong the febrile stage. Twelve cases are reported in detail in which fever treatment was applied by injections of pyrifer. Favorable results were encountered. In one case of rapidly progressing paralysis and in which respiratory involvement was feared, the fever therapy was followed by rapid improvement. Although it is well known that paralysis may become stationary at any stage of the disease, the favorable results in the cases mentioned and the absolute absence of ill effects would seem to justify further investigation of this method of treatment.

(*An interesting suggestion, needing corroboration.*—ED.)

Experimental Rubella in Human Volunteers. *S. G. Anderson, Walter and Eliza Hall Institute of Medical Research, Melbourne, Australia.* J. Immunol. 62: 29-40, May 1949.

Typical rubella was produced by spraying the nose and oropharynx of young adults with throat washings taken on the first day of the rash. The infective material was obtained by the patient's gargling 10 ml. of normal saline for half a minute. The agent responsible remained viable in the presence of 200 units of penicillin per ml., and seemed to be filterable through an 800 mμ. membrane. It is therefore probably a virus. The agent remained infective for at least 90 days when stored as frozen throat washings at -70°C.

The incubation period in human subjects infected by inhalation ranged from thirteen to twenty days until the rash appeared. Lymphadenopathy preceded the onset of the rash by up to six days in some instances. Susceptible individuals were infected by contact with the experimental disease. Symptoms were not induced in any of nine subjects giving a history of rubella six to nine years previously. Other observations gave suggestive evidence for the existence of subclinical or unnoticed rubella. Nearly 40 potentially infectious volunteers were dispersed in the community during the first eleven or twelve days of their incubation period, yet no case of

rubella is known to have developed from contact with them during this time. It is therefore believed that subjects incubating the disease are not highly infectious before the eleventh day of the incubation period.

It is concluded that immunity to rubella persists probably beyond the six to nine year period covered by these results. There is no evidence that the artificially induced disease differs in any way from natural rubella; the immunity produced should be equally effective. 5 references. 1 figure.

(*This paper describes one of a series of studies currently being carried on in Australia, with the purpose of finding a means of immunizing rubella-susceptible girls before marriage. The giving of throat washings from infected persons which have been stored in the frozen state until needed has proven a satisfactory means of inoculation. The evidence is strong that an infection thus induced will provide a high degree of subsequent immunity for at least nine years. An artificially induced infection in a susceptible woman at or about the time of her marriage may therefore be expected to ensure virtually complete immunity over the usual childbearing period.*

As the author points out, an immunization program of this type would call for the strict isolation of the subjects during the period of their infectivity, perhaps at a camp. It would also call for careful supervision of infective material, in order to exclude from it other pathogenic bacteria and viruses.—ED.)

14. Infectious Diseases, Chronic

Pure Granulomatous Nocardiosis: A New Fungus Disease Distinguished by Intracellular Parasitism. *John T. Cuttino and A. M. McCabe, Duke University, Durham, N.C.* Am. J. Path. 25: 1-47, Jan. 1949.

A 34-month-old white baby was hospitalized with the chief complaints of anorexia, nausea, vomiting and weight loss. Physical examination showed emaciation, general lymphadenopathy and a large irregular abdominal mass. The child was not toxic and was afebrile. Histopathologic examination of an inguinal node showed extreme reticulo-endotheliosis with massive numbers of intracellular acid-fast organisms. The organism was isolated in pure culture from a second biopsy specimen. All other laboratory work was noncontributory. In spite of penicillin and promin and supportive therapy, the child grew steadily weaker and died four and a half months after the onset of the illness. Autopsy showed ascites, pleural effusion and a large abdominal mass consisting of matted lymph nodes which displaced the other abdominal organs and which were yellow on section. The pancreas, kidneys and adrenals were embedded in the mass but were otherwise not abnormal. The small intestine was normal but the colon contained innumerable eroded and indurated ulcers throughout its length. The spleen also contained yellow areas on section. The heart, lungs, brain and bone marrow showed no gross lesions.

Microscopic examination showed a peculiar form of granuloma characterized by intracellular parasitism and proliferation of macrophages pro-

ducing complete replacement of lymphoid tissue of the mesenteric, retroperitoneal, mediastinal and subclavian lymph nodes and spleen, partial replacement of the bone marrow and lymphoid tissue of the gastro-intestinal tract, and microscopic proliferation of macrophages with intracellular organisms in liver and lungs and granulomatous ulcerations of the colon.

The peculiar morphologic, cultural and biochemical characteristics of the causative organisms justify the designation of this organism as a new species to which the name *Nocardia intracellularis*, n. sp. (genus Nocardia, family Actinomycetaceae) was applied. The organism is pleomorphic, gram-positive, acid-fast, non-spore-forming, and when undisturbed exhibits true lateral branching. It results in no lesions in chickens, rabbits, frogs and goldfish but produces a characteristic nonlethal disease in guinea pigs, rats and mice consisting of comparatively extensive necrosis and relative paucity of intracellular organisms. The lesions heal rapidly in the experimental animal and are accompanied by production of sensitivity of the tuberculin type.

It is felt by the authors that this is a new disease caused by hitherto undescribed organisms. 60 references. 23 figures. 4 tables.—*A. N. Evans.*

(*We have seen sections of the autopsy material from the child reported in this paper, and have discussed the cultures with a mycologist who studied them independently of the authors. The intracellular character of the acid-fast organisms is very pronounced. In culture the organism lies somewhere between the true Nocardias as we know them and certain of the acid-fast Mycobacteria, although probably closely related to the Nocardias. The authors are fully justified in giving this fungus a name and differentiating it from described forms. The disease it produces has apparently never been described before.*—ED.)

Pseudoreactions to the Tuberculin Patch Test. *Hermann Vollmer, New York, N. Y.* Am. J. Dis. Child. 78: 302-05, Sept. 1949.

Pseudoreactions to the tuberculin patch test are rare. Their frequency increased temporarily when temperatures between 50 and 60 instead of 100° C. were used for the concentration of tuberculin. These pseudoreactions are ascribed to a constituent of tuberculoprotein which acts as a primary skin irritant, causing dermatitis. The irritative quality of the offending substance seems to be decreased by prolonged heating at a temperature of 100° C.

Pseudoreactions to the tuberculin patch test occur mainly in individuals who are allergic or have a family history of allergy. They differ from true positive reactions in that they appear and fade more rapidly; they consist essentially of erythema with or without a slight swelling, and they lack the lichenoid-follicular and vesicular form elements as well as the induration of positive reactions. A second reading four to seven days after the removal of the patch test may prevent errors; at this time pseudoreactions have faded, while true reactions are still visible. 1 reference. 1 chart. *Author's abstract.*

The Pathogenesis of Epituberculosis in Children, with a Note on Obstructive Emphysema. *James H. Hutchison, Glasgow, Scotland.* Glasgow M. J. 30: 271-82, Aug. 1949.

There have been four theories regarding the pathogenesis of the condition called epituberculosis by Eliasberg and Neuland in 1920, namely, that the condition is: 1) nonspecific pneumonia; 2) allergic tissue reaction around a primary tuberculous focus; 3) atelectasis secondary to bronchial obstruction produced by enlarged tuberculous glands; 4) lowgrade tuberculous pneumonia.

The author has studied 91 patients of whom 13 were examined by bronchography and 40 by bronchoscopy. The frequent occurrence of the asthmatoid wheeze was noted clinically—a sign of bronchial narrowing. Roentgenologically it was found that lateral and oblique views frequently indicated the presence of segmental or lobar atelectasis when the anteroposterior views were equivocal. Bronchography revealed bronchial occlusion in 10 of the 13 patients so investigated and bronchiectasis in the remaining 3. Bronchoscopy revealed bronchial obstruction in 38 of the 40 patients examined. This was sometimes due to a tuberculous gland bulging into the bronchial lumen, and in some other patients tuberculous tissue was lying within the lumen. In 9 patients tuberculous tissue or tubercle bacilli was recovered from within the bronchus. Obstructive emphysema was not infrequently found (6 cases) in association with epituberculosis—indicating incomplete bronchial occlusion. It was considered that the evidence showed that epituberculosis is due to bronchial obstruction with atelectasis, with occasionally some bronchogenic tuberculosis in the atelectatic portion.—*Author's abstract.*

Penicillin in the Treatment of Pre-natal Syphilis. *E. A. Morgan, Toronto, Canada.* Canad. M. A. J. 61: 275-78, Sept. 1949.

In a four-year period 54 infants with prenatal syphilis were treated—32 with penicillin alone, 9 with penicillin combined with Stovarsol and 13 with Stovarsol alone.

The dosage of penicillin varied from a low of 50,000 units per pound total dosage to a high of 550,000 units. The average total dosage was 138,000 units, which is much larger than is currently recommended. From February 1945 to October 1948 penicillin was administered every three hours but since October 1948 all cases were treated with procaine penicillin in the Out-Patient Department, 300,000 units every second day. The built-up dosage of 10,000 units and 20,000 units on successive days before giving the maximum dose of 100,00 units was used to prevent possible Herxheimer reactions.

The mortality rate in the penicillin-treated cases was 7%, in the Stovarsol-treated cases 16.6%, and in the whole series 9%. Bronchopneumonia occurred as a complication in 5 penicillin-treated cases and only one died. It occurred twice in the Stovarsol-treated cases and both died. The superiority of penicillin therapy lies in its ability to control both the

syphilitic infection and the intercurrent infections which have in the past been the main cause of death. In both series all cases surviving became serologically negative in an average period of four months.

Twenty-eight older children treated with penicillin doses of from 5 to 1 million units failed to show as satisfactory serologic response as did the infants. In 9 the quantitative Kahn was reduced to 4 units. A significant serologic response was much slower than in the early stage but definitely faster than with the old bismuth and arsenic routine.—*Author's abstract.*

15. Liver, Kidneys, and Spleen

Liver Damage in Gastro-Enteritis. *Bernard Schlesinger, W. W. Payne, and E. D. Burnard, Hospital for Sick Children, Great Ormond Street, London, Eng.* Arch. Dis. Childhood 24: 15-24, March 1949.

Histologic evidence of liver damage is not uncommon in fatal cases of gastroenteritis. There is reason to believe that the cell damage, fatty infiltration and early fibrosis depend to some degree on the severity and duration of the disease. Clinical observations are presented on 6 infants under 8 months of age who had gastroenteritis with evidences of severe liver damage. Potassium deficiency was present in all six and this association calls for consideration of a possible relationship.

All cases had severe dehydration followed by edema which was often gross at the peak of the illness. Enlargement of the liver often appearing rapidly, jaundice, and hemorrhagic phenomena associated with a low prothrombin time were taken as evidence of liver damage. Jaundice was seen in all but one instance; in one case the only evidence of liver impairment was a raised serum bilirubin. In 70 other consecutive cases of gastroenteritis observed over the same period without obvious liver failure, three had a raised serum bilirubin. The appearance of jaundice in infantile gastroenteritis is an ominous sign. In a series of 300 cases, only two of the eight jaundiced patients survived. Potassium deficiency in infants with gastroenteritis is associated with difficulty in rehydration despite massive quantities of fluid by any route, and a tendency to edema.

Infants who survive the acute period of severe dehydration have passed through a severe state of malnutrition and therefore may suffer from liver failure later in the course of their disorder. Postmortem investigations so far undertaken reveal two main pathological features: cell damage, and necrosis or fatty infiltration. Further studies are needed to elucidate the exact nature and order of events in the liver. In the belief that protein deprivation is chiefly responsible for the changes in the liver, protein substances and especially casein hydrolysate by mouth, when tolerated, were given liberally with excellent results. Restoration of fluid and electrolytes, and potassium in particular, was an essential part of the treatment. The casein hydrolysate was given intravenously in amounts of 2 Gm. per kilogram of body weight per day. The oral dosage was two to four times as great. 25 references. 6 figures.

(In shock produced by hemorrhage or anoxia of the liver secondary to obstruction of the hepatic artery, the liver shows defects in the enzyme systems and changes in electrolyte composition (Darrow and Engel, Am. J. Physiol. 145: 32, 1945).

The response of these patients favors a metabolic and nutritional rather than infectious origin. The complication is apparently more common in England than in the United States.—ED.)

Peritoneal Irrigation. Method of Treatment of Acute Renal Failure in an Infant. *Walter R. Buerger, Edward C. Lambert and Barbara A. Maitland, Children's Hospital, Buffalo, N. Y.* Am. J. Dis. Child. 78: 237-47, Aug. 1949.

An 8-month old infant with acute renal failure due to pyelonephritis was treated by peritoneal irrigation. Mechanical and technical problems were encountered during the procedure and great difficulty was met in maintaining correct fluid and electrolyte balances. Greater lability of these balances in the infant necessitated frequent blood chemical determinations and adjustment of the composition of the oral, intravenous and irrigation fluids. After the irrigation procedure was terminated, failure to maintain normal electrolyte and fluid balances and inability to control the kidney infection eventually resulted in the death of the patient.

The application of the peritoneal irrigation method, however, proved successful. It provided an adequate excretory route as a substitute for the kidney for the eight and one-half days that it was used. As much as 2.8 Gm. of urea nitrogen were excreted per day, the blood nonprotein nitrogen level fell from 178 mg. per 100 cu. mm. to normal, and parallel improvement occurred in the infant's general condition. No harm from the peritoneal irrigation procedure was observed. The patient lived for eighteen days after the irrigation was terminated. The postmortem examination revealed no evidence that the procedure was in any way responsible for the death of the patient.

It was concluded that peritoneal irrigation is a difficult although feasible procedure in an infant. Complete success requires the ability to maintain normal electrolyte and fluid balances and the presence of a reversible renal lesion. 7 references. 4 figures. 2 tables.—*Author's abstract.*

16. Metabolic and Systemic Disorders

Porphyrinuria. Report of an Unusual Case. *Norman C. Woody, Tulane University School of Medicine, and the Charity Hospital of Louisiana, New Orleans, La.* Pediatrics 4: 47-52, July 1949.

A premature female Negro infant is described who was born to a mother suffering from acute porphyria. The initial urine passed by the infant was port wine in color; twelve hours later it was yellow, and forty-eight hours later it was clear amber. Metabolic studies demonstrated that

uroporphyrin and coproporphyrin were excreted in excessive although declining amounts in the urine over the first ten weeks following birth. The meconium contained 20.4 mg./100 cc. of coproporphyrin, 17% of this being coproporphyrin III. There was no demonstrable uroporphyrin. Considerable amounts of coproporphyrin I are regularly present in meconium but the amount present in this instance is believed to constitute a considerable excess. The infant has been followed until 11 months of age, and is still under observation; she has been entirely free from unusual signs or symptoms except that her stature at 11 months is small (weight, 6.2 Kg.; crown-heel length, 64.8 cm.). No similar case has previously been recorded. The term "passive porphyrinuria" is suggested to describe this condition on the hypothesis that the porphyrinuria was passively acquired through placental transmission. The types and relative proportions of pigments excreted by mother and infant were similar.

This case is believed to throw new light on the genesis of symptoms in porphyria and porphyrinuria. The infant went through embryologic and fetal development in an internal and external environment exposed to an excess of porphyrins, without any untoward effects. Absence of symptoms usually associated with porphyria seems to indicate that the pathologic lesions in this disease must result in some fashion from the underlying metabolic error rather than from the presence of these pigments. 16 references. 1 figure. 1 chart. 1 table.

(The porphyrins are a family of stable chemical substances made up of a basic porphin ring with various organic sidechains replacing certain of the hydrogen atoms of the porphin. Porphin itself is a heterocyclic compound consisting of four pyrrole rings united by methylene groups. Hemoglobin, myoglobin, cytochrome, catalase and peroxidase are combinations of iron with protoporphyrin III. Important subgroups are the coproporphyrins and uroporphyrins. The identity and metabolism of the porphyrins within the human body are still far from completely understood, as are also the relationships of these substances to disease states.

The terms "porphyrinuria" and "porphyria" are not always given the same meanings, but a commonsense approach is to use porphyrinuria when the excretion of porphyrins is in excess of normal, and porphyria when there is a constitutional error of porphyrin metabolism. Porphyrinuria of a mild subclinical degree is detectable after hemorrhage, sickle cell anemia, hemolytic jaundice, and pernicious anemia after treatment, along with an increase in fecal excretion. A decrease in the excretion obtains in the refractory anemias associated with a hypoplastic marrow. States of hepatic dysfunction may also induce increased urinary excretion of porphyrin, usually coprophyrin I. This occurs in catarrhal jaundice, hemolytic jaundice, hepatic cirrhosis and obstructions of the bile ducts. The excess quantities excreted in these states are rarely enough to color the urine, and their presence is best searched for by fluorophotometric methods.

Porphyria is an uncommon disease. Of the various proposed classifications the simplest is that of Watson (1947) *which lists two types*: 1) *the*

congenital or light-sensitive form; 2) the intermittent acute acquired form. The first is seen most commonly in childhood, and the symptoms usually subside during adolescence. The second type ordinarily begins during adult life; while probably also on a congenital basis it is only rarely associated with sensitivity to light.

In affected children the disturbance manifests itself by familial occurrence, photosensitivity of the skin with blistering, necrosis and scarring, gastro-intestinal pain, hirsutism, and passing of red urine. Some cases seem to have been precipitated by exposure to a toxic factor such as lead, barbital, trional, sulfonal, acetanilid, nitrobenzol, sulfonamides, or other drugs. The blood serum, the teeth and the urine may exhibit red or reddish orange fluorescence under ultraviolet light, and can be tested for with the Wood's lamp. Along with the porphyrins, the urine may contain some melanin, urofuscin and other colored substances. A history of passing red urine in the presence of some or all of the above findings is practically pathognomonic of porphyria. At times the porphyrins are excreted in a precursor or porphobilinogen state, and will not be evident at first. The color can be brought out by permitting the urine to stand in the light, or by adding an oxidizing agent. Watson's test for porphobilinogen is indicated here. The porphyrin pigments are reddish brown in alkaline solution, purple or reddish violet when dissolved in mineral acids, and dull red in organic acid solutions. They give an intense reddish fluorescence under ultraviolet light. Identification of the pigments is a complicated technical procedure beyond the scope of the average clinical laboratory.—ED.)

17. Milk; Infant and Child Feeding

The Biological Availability of the Calcium in Bone. *T. G. H. Drake, S. H. Jackson, F. F. Tisdall, W. M. Johnstone, and L. M. Hurst, University of Toronto, and Hospital for Sick Children, Toronto, Ontario, Canada.* J. Nutrit. 37: 369-76, March 1949.

Present human dietaries in Europe and North America are largely dependent on milk and milk products for most of the needed calcium. Animal and fish bones no longer enter into the diet of civilized man to any extent.

"In many areas of the world the supply of milk and milk products is not sufficient to provide the recommended dietary allowances for calcium. During and immediately after the last war a large proportion of the canned meat products prepared in Canada for U.N.R.R.A. contained 15 per cent of cooked ground bone; this resulted in the final canned meat containing approximately 0.8 Gm. of calcium per 100 Gm. Today all flour sold in Newfoundland, where the consumption of milk is small, contains ½ of 1 per cent bone meal. For many years bone meal has been an ingredient of certain infant cereal products. Because of this use of bone, the question of the availability for humans of the calcium from this source has assumed considerable importance."

A nutritional study was carried out to determine the comparative availability of the calcium in bone and in milk. Six adults were first given a low calcium diet for four 5-day periods. Supplements of either skim milk powder or bone meal supplying the same amounts of additional calcium were given during alternate collection periods. The calcium supplied by the supplement was 0.646 Gm. per person per day. The basal diet contributed an average of 0.218 Gm. of calcium per day, making a total intake of 0.864 Gm. per day. A capsule supplying 5000 units of vitamin A and 700 units of vitamin D was taken daily. The retention of the calcium in bone meal appeared to be of the same order as that of milk.

A similar study with young rats showed the retention of calcium from cooked ground bone to be approximately 90 per cent of the retention from whole dried milk. 5 references. 2 tables.

(*Except during infancy, milk is not an important source of calcium for the greatest part of the world's population—for instance, India, China, the Indian population of the Western Hemisphere, etc. The emphasis on the importance of milk by dietitians ties in with the role of milk in the diet of Western Europe and North America. Calcium deficiency is less in these areas than in Japan, China and elsewhere. Other adequate sources of calcium must be provided when milk is not being taken. Bone is apparently a satisfactory source.*—ED.)

18. Miscellaneous

Pharyngeal Injury Caused by Ingestion of Glass Chipped from Baby-food Container. *Jerome S. Leopold, New York, N. Y.* J. Pediat. 35: 373-75, Sept. 1949.

Injuries to infants from the swallowing of glass broken from baby food containers have received little notice. Only two other case reports have been found. One patient had mediastinitis, the other peritonitis. An infant is described whose pharynx was injured by the accidental swallowing of chipped glass from a food container. A well male infant, aged 7 months, suddenly cried and vomited his dinner. The vomitus consisted of squash mixed with mucus and bright red blood. There was some difficulty in breathing and swallowing. The squash had been obtained from a glass food container which was still in the refrigerator. Examination of the container revealed that a small part of the rim was missing.

Physical examination was negative excepting for the throat, which was very congested. There was no bleeding or any visible injury to the pharynx. Immediate roentgenologic examination was negative. The temperature of the infant was 102° F. Therapy consisted of steam inhalations, Sulfadiazine and Phenobarbital. At the end of twenty-four hours the difficulty in breathing and swallowing had disappeared. Sixty hours after the initial vomiting a piece of glass was passed by rectum, mixed with a soft stool.

19. Musculoskeletal System

Double Contour, Cupping and Spurring in Roentgenograms of Long Bones in Infants. *Kurt Glaser, Cook County Children's Hospital and the College of Medicine, University of Illinois, Chicago, Ill.* Am. J. Roentgenol. 61: 482-92, April 1949.

A double line in the contour of the long bones of the extremities and a cupped or spurred epiphyseal line are sometimes observed as non-pathologic findings in the roentgenograms of healthy infants. To determine the frequency, time of appearance and of disappearance of these findings, roentgenograms of the forearm and lower leg were taken at monthly intervals, up to 8 months of age, of 100 consecutive prematurely born healthy infants.

The "double contour", simulating periosteal thickening and/or cortical hypertrophy, was seen most frequently in the ulna (78%) and was first visible during the 3rd or 4th month in the largest number of cases. These lines began to be less frequently visible in the 7th and 8th month of life.

The epiphyseal plate, instead of being a straight line, may appear concave or convex and resemble "spurring", "lipping" or "cupping", especially if the roentgen rays traverse the epiphyseal plate at an angle other than a right one. This "cupping" and/or "spurring" was seen most frequently in the ulna (73%) and first visible most often in the 3rd and 4th months. It began to disappear in many cases around the 7th and 8th month.

A single roentgenographic examination of the long bones of an unselected group of 100 full-term infants ranging in age from 1 to 8 months revealed the same "double contour", "cupping" and "spurring" in a sufficiently high number of instances to demonstrate that these are not characteristics of the premature baby alone.

In the premature series, examinations of the blood serologically and chemically did not reveal any sign of pathology. The growth and development of the babies was not unusual. Histopathological examination of all four bones of one baby who died of interstitial pneumonitis revealed normal bone structure.

The conclusion is reached that these findings are to be considered part of the normal roentgen appearance of the long bones during the process of growth. 5 references. 10 figures. 2 tables.—*M. Maresh.*

Congenital Chondrosternal Prominence (Pigeon Breast). A New Interpretation. *Henry A. Brodkin, Newark, N. J.* Pediatrics 3: 286-95, March 1949.

Deformities of the chest such as funnel chest and pigeon breast are here classified as congenital, with the names congenital chondrosternal depression for funnel breast, congenital chondrosternal prominence for pigeon breast and congenital chondrocostal depressions for Harrison's grooves. These chest deformities have been ascribed to rickets, upper

respiratory obstructions, intrauterine compressions and prolonged and severe dyspnea and cough. The author advances a new theory as the cause for these conditions. First, the congenital factor is stressed. Second, attention is called to the fact that the diaphragm is the chief mechanical organ of respiration and is responsible for the changes in the structure of the thorax. Third, a study of the embryologic development of the diaphragm indicates that deviation or alteration in the fusion of its components may alter the normal proportion and structure of the circumferential radial musculature and the membranous portion. Contraction of such an abnormally developed diaphragm results in strong traction on the mobile chondrosternal and epigastric area. In a normal diaphragm the traction is uniformly distributed on the trefoil membranous portion. In support of the diaphragmatic theory as the cause, the results of surgical treatment of congenital chondrosternal depression (funnel chest) are mentioned. In addition, in a case of congenital chondrosternal prominence (pigeon breast) the hemi-diaphragm was paralyzed by the injection of 1 percent novocain in the phrenic nerve and the mechanism producing the deformity was arrested on that side.

A patient is described with congenital chondrosternal prominence, emphasizing the features of the deformity. The configuration of the diaphragm, the ratio and distribution of the muscular portion and tendinous portion as it affects inspiration are described. From these findings the conclusion is reached that a congenital alteration in the development of the diaphragm will result in abnormal stress on the attachments to the anterior lower part of the thoracic cage as soon as the infant begins respirations. This abnormal force interferes with the normal evolution of the human thorax from a round shape to the elliptical shape during the first year of life. There results a thoracic depression or prominence, depending on the variation of the circumferential muscular portion of the diaphragm. 16 references. 5 figures.—*Author's abstract.*

Congenital Pseudarthrosis of the Tibia and Its relation to Fragilitas Ossium. Report of a Case and Review of the Literature. *F. Y. Khoo, Peiping Union Medical College, Peiping, and the National Central University, Nanking, China.* Am. J. Dis. Child. 77: 201-16, Feb. 1949.

Pseudarthrosis implies the formation of a false joint, usually after fracture, with no attempt at repair. A case of so-called congenital pseudarthrosis of the tibia is reported in an adolescent French boy. Repeated bone graftings were unsuccessful in effecting firm union. Because the roentgenograms were not unlike those seen in localized fragilitas ossium, a review of the literature was undertaken to ascertain the incidence, classification, etiology and treatment of this rare entity. The etiologic aspects appear complex but the association of congenital pseudarthrosis of the tibia with osteitis fibrosa cystica, with bone cysts, and with neurofibromatosis have all been reported as well as the presence of a hereditary factor. Operative treatment is apparently less successful in children under 8 years

of age than in those operated after adolescence. It was concluded that congenital pseudarthrosis of the tibia is in all likelihood a variant of fragilitas ossium. 36 references. 3 figures.—*M. Maresh.*

20. Nervous System

Revascularization of the Brain Through Establishment of a Cervical Arteriovenous Fistula. Effects in Children with Mental Retardation and Convulsive Disorders. *Claude S. Beck, Charles F. McKhann and W. Dean Belknap, Western Reserve University School of Medicine, Cleveland, Ohio.* J. Pediat. 35: 317-29, Sept. 1949.

The gliosis characteristic of convulsive disorders, sensory-motor impairment and mental retardation interferes with the cerebral blood supply. A report is presented of the treatment of such cases by making an anastomosis between the common carotid artery and internal jugular vein to redistribute and increase the flow of blood to the brain. All parts of the brain are connected by an intercommunicating vascular network without endarteries. Arterial pressure in the venous system will produce a redistributed blood flow. Cerebral venous return is asymmetrical with a pathway from each sinus to one of the internal jugular veins. Blood to the right jugular comes chiefly from the cortex and to the left chiefly from the deeper portions and cerebellum. Injection of a tracer substance into both the common carotid arteries and jugular veins showed that under arterial pressure the superior sagittal sinus and all its visible branches are filled from the right jugular vein. The operation for arteriovenous anastomosis is therefore made on the right side. In general, patients selected for this operation were those having brain injury ordinarily causing gliosis, including those with mental retardation on an anoxic or arteriosclerotic basis and others having convulsive disorders on an organic basis with or without mental retardation.

When performing the operation, a transverse incision is made on the side of the neck about 2 cm. above the right clavicle. The sternocleidomastoid muscle is cut and the common carotid artery and internal jugular vein are dissected free for about 4 cm. All branches of the jugular vein below the base of the skull are ligated. A temporary ligature is applied to the vein above and to the common carotid artery above and below the site for anastomosis, leaving adequate space for the fistula. The vein is ligated with 3 ligatures below. A 4 to 5 mm. opening is made in both artery and vein, care being taken not to make too large or too small an opening as this might produce heart failure or thrombosis. A new suture is started at each end and an over-and-over stitch used. The temporary sutures are then removed and any leak is closed.

This operation was used in 10 children 11 months to 14 years of age having mental retardation with or without convulsive disorder and on a 38-year old adult with left hemiplegia and mental deterioration. Case reports of 4 patients are presented. Progress in the other 7 could not be

evaluated as their operations were too recent. Obviously beneficial results have been produced by the operation although a maximum follow-up of only five months has been possible. Complete restoration of normal function cannot be anticipated but some functional return for the remaining viable neuronal tissue may be expected. The operation has been proven safe and, as yet, without complications. The fistula may be closed if untoward results appear. 21 references. 1 table. 5 figures.

(This operation for mental retardation and related disorders is undergoing extensive trial in many clinics. The authors' own series is now well over 100 cases. The procedure must still be regarded as on trial. Follow-up studies will ultimately decide whether or not it is of true benefit, and, if so, just what classes of disturbances will be helped by it.—ED.)

Thrombosis of the Superior Longitudinal Sinus in an Infant Treated with Heparin and Intravenously Administered Fluid. (Thrombose van de sinus longitudinalis superior bij een zuigeling, behandeld met haparine en intraveneuze toevoer van vocht). *S. van Creveld, J. I. de Bruyne and M. G. Stronk, Amsterdam, The Netherlands.* Nederl. tijdschr. v. geneesk 93: 1144-49, Apr. 9, 1949.

A 2-month old infant who was hospitalized because of congenital malformation of the heart with cyanosis presented cerebral signs during a slight gastro-enteritis attack. There were slight contractions of the right arm and the head, and the eyes turned to the right. This was followed by paresis of both arms and the facial muscles. The legs became spastic. There was conjugate deviation of the eyes to the right. Unconsciousness developed, with a bulging fontanelle and dilatation of the veins above the right eye. The spinal fluid was slightly xanthochromic, with protein and cells slightly increased. Treatment consisted of parenteral fluid by means of intravenous drip infusion of heparinized fluid. The heparin dosage varied between 2 and 6 mg. per 100 ml. of fluid; on the last day 16 mg. of heparin per 100 ml. was necessary. This treatment was continued for 10 days. Improvement began on the fifth day. The infant started to take fluid by mouth and the neurologic signs disappeared entirely. Three months later the child died of bronchopneumonia. Postmortem examination revealed the presence of remnants of an old thrombosis of the superior longitudinal sinus. 3 references. *J. I. de Bruyne.*

Acute Cerebral Tremor and Ataxia in Young Children. *A. Dekker-Jonker, Haarlem, Netherlands.* Nederl. tijdschr. v. geneesk. 92: 2912-17, Sept. 18, 1948.

Between July 1948 and February 1949, eight children were seen with acute cerebral tremor. The ages varied between 4 months and 6 years. The symptoms arose after or simultaneously with febrile illnesses such as stomatitis, intestinal disturbance, bronchopneumonia, and inflammation of the throat. The tremor was general or localized, increasing with exertion and associated with cerebral ataxia and psychic changes especially apathy

or agitation. Sometimes the reflexes were increased. In 5 cases the cerebrospinal fluid was normal. The children were confined to bed and after some weeks or months they all recovered without sequellae.

A toxic encephalopathy has been considered, but this is contraindicated by the fact that the symptoms usually arise after the acute illness, and do not always increase when the original disease shows a relapse. The simultaneous occurrence of a number of cases suggests the possibility of an independent virus infection. A relationship with the atactic form of poliomyelitis has also been considered, but the cerebrospinal fluid showed no abnormalities. 5 references.—*M. G. Stronk.*

Infantile Cerebral Palsy. III—The Basis of Treatment. *Eirene Collis, Carshalton, England.* Physiotherapy 35: 146-48, Sept. 1949.

Normal movement is a complex of activity which evolves as growth proceeds. The mechanisms concerned are present at birth: subsequent development of activity is an orderly and progressively complex employment of motor equipment for functional purposes.

Destruction in infancy of any part of the interrelated mechanisms concerned in the production of movement precludes this orderly progression, and leads to increasing manifestation of motor difficulty as development proceeds. Severe motor difficulty with or without sensory failure results in inability of a child to explore and acquire knowledge of his environment, a mental deprivation which, founded on inadequacy of gesture, speech and function, leads to apparent lack of response. This deprivation and poor functional response are often confused by the clinician with behavior due to actual mental deficiency. Persistent functional effort in the presence of faulty motor adjustment inevitably leads to motor distortion and physical deformity.

Treatment of the affected infant should be instituted at once in order that mental deprivation should not occur, and to prevent deformity, and to inculcate adequate motor facility. Such treatment must be based upon an analysis of the particular motor or sensorimotor difficulty the baby is encountering, and must reorganize his motor behavior as a whole so that the primary defect is compensated for and secondary defects are prevented from arising.

Infantile cerebral palsy is due to a profound neurologic catastrophe affecting movement, and, hence, motor development as a whole. It is a "loss" phenomenon, and the resultant clinical picture is expressive of that loss. Treatment technics must be related to the loss, and must effect substitution for it to obtain the nearest possible approximation to normal motor behavior. Sustained normal attitudes and fluency of motor expression from attitude to attitude are the hall-marks of normality: they are also the desiderata of treatment. These, and concomitant intellectual progress, can only be achieved by the affected child himself, but they cannot

be efficiently achieved by his own unguided use of defective motor mechanisms, any more than they can subsequently be provided by measures which disregard the activities of living tissues.

Analysis of the specific loss, and training of the child from infancy onward in the reorganized use of affected mechanisms is the combined function of neurologist and cerebral palsy therapist. Supportive correct handling and co-operation from parents, associates, and, eventually, school teachers, are essential adjuncts of successful treatment. Diagnosis in infancy is a sine qua non for preventive therapy.—*Author's abstract.*

21. Newborn Period, Prematurity

The Association of Maternal Obesity, Large Babies, and Diabetes. *J. A. L. Gilbert, University of Edinburgh.* Brit. M. J. 1: 702-09, Apr. 23, 1949.

It is well known that the majority of diabetic women have an abnormally high fetal loss rate before the onset of clinical diabetes. The rate of fetal death reaches a maximum in the immediately pre-diabetic phase, and is higher among women developing diabetes before the age of 45 than among those after this age.

Twenty-one women with obstetric histories of unexplained abortions, miscarriages, intrauterine deaths, stillbirths, and neonatal deaths, and the birth of babies weighing 10 lb. or more, were admitted to hospital for investigation. Six of these patients were found to be diabetic. All six were grossly obese.

Evidence is brought forward to show a correlation between progressive maternal obesity, the birth of unusually large babies, and ensuing maternal diabetes. An excessive secretion of the growth factor during pregnancy may account for the associated phenomena. 19 references. 1 table.

(*The relationship between oversized infants and present or future diabetes in the mother is now widely accepted. It is good public health practice for the pediatrician to advise that the mother have a sugar tolerance curve whenever the newborn infant seems overlarge for the gestational age.*—ED.)

Mortality Amongst Babies from Injury at Birth. *W. T. Russell and Ian Sutherland, Oxford, England.* Brit. J. Soc. Med. 3: 85-94, April 1949.

This is an analysis of the available statistics in England and Wales since 1921, and in various administrative counties and county boroughs including London, of fatal injuries at birth. No data are available in connection with the numerous residual disabilities resulting from nonfatal injury.

There has been an apparent increase in such mortality rates during the period 1921 to 1945 even when allowance is made for the transference of deaths from convulsions, asphyxia, and atelectasis. There are large

differences between the mortality rates in the various administrative counties, and likewise between the county boroughs. Contrary to expectation, there is little correlation between the mortality from injury at birth and the proportion of first births in the 12 major regions of England and Wales. There is evidence from Scottish data on stillbirths that the mortality ascribed to injury at birth among them depended upon the age of the mother, the death rate being higher among older women. There are no available statistics in England and Wales which relate the age of the mother to the mortality from injury at birth. Statistics of the age of maternity have been published since 1939 and have indicated a slight increase in the mean age between 1939 and 1945 throughout the country. It is very doubtful, however, if this increase is sufficient to account for the suggested increase in the mortality.

The mortality in a group of "poor" boroughs in London is subnormal, whereas in a "residential" group it is in excess of the average for London. There is also a positive correlation between the mortality from injury at birth and the maternal death rate. This may or may not be the result of undue surgical interference.

The need here demonstrated for a carefully planned specific study has recently been emphasized in the following statement from the Report on Neonatal Mortality and Morbidity: "Many cases of birth injury are undoubtedly due to lack of obstetrical skill and judgment on the part of the accoucheur, especially when delivery by breech or by forceps has been necessary."—*Authors' abstract.*

Prothrombin Studies on the Blood of the Premature Infant and the Value of Vitamin K Therapy. *Heyworth N. Sanford, Mary Kostalik and Betsy Blackmore, Presbyterian Hospital, Chicago, Ill.* Am. J. Dis. Child. 78: 686-93, Nov. 1949.

Prothrombin estimations were made by the method of Quick on the blood of 100 premature infants. With 83 of these premature infants no vitamin K had been given to influence their blood coagulation, either to the mother before birth or to the child after birth. The remaining 17 had received vitamin K in ample quantities immediately after birth (2 to 5 mg.) and in many instances the mother had also received vitamin K before birth of the child.

Over the first fourteen days of life the mean prothrombin values were slightly higher in both groups of premature infants than in full-term newborn infants. The premature infants given vitamin K had a slightly higher prothrombin content than did the untreated infants. Six per cent of the untreated group had hemorrhagic manifestations, whereas 24% of those given vitamin K had such phenomena. The mortality and frequency of cerebral hemorrhage, as shown by autopsy examination, was higher in the treated group. This increase was attributed to the fact that the initial care was not as good as in the untreated group. Curiously, 5 of

the premature infants had no measurable prothrombin on the first day of life, and their blood failed to clot. One of these died on the second day of life; the other 4 had no hemorrhagic manifestations and were entirely normal.

It is concluded "that the administration of vitamin K to premature infants in an endeavor to decrease hemorrhagic manifestations is without clinical basis." 10 references. 4 tables.

Experimental Use of Methyl Testosterone in the Premature Infant. *Guy A. Tittle, Dallas, Texas.* Texas State J. Med. 45: 563-64, Aug. 1949.

Methyl testosterone, 2.5 mg., was given orally every twelve hours to a group of 17 premature infants for a period of thirty days beginning at 24 hours of age. They varied in weight from 3 pounds to 4 pounds, 9 ounces. Both male and female babies were so treated. These infants regained their birth weight faster than the average nontreated cases. They also reached the 5-pound weight faster than the average nontreated cases. No ill effects were noted in any of the cases.

22. Nutrition

Obesity in Children. A Clinical-Prognostical Investigation. *Hans-Olof Mossberg, Kronprinsessan Lovisa's Children's Hospital. Stockholm, Sweden.* Acta. paediat. 35: 1-122, 1948.

The literature on obesity is reviewed in considerable detail, followed by a presentation of the author's own data and opinions based on the study of 504 obese children in Stockholm. Of these, 230 were re-examined after an average period of 7 years. For 98 others the follow-up was done by questionnaire. The study is particularly valuable because of the racial homogeneity of the Swedish population.

The Rohrer index was used in assessing the degree of obesity for the patients and parents. Classification of obesity is necessarily vague since the etiological factors are far from clear. The author's classification is as follows:

A. Obesity up to 2 years of age
   1. Not more than 1 case of obesity in the family.
   2. More than 1 case of obesity in the family.

B. Diffuse non-characteristic obesity
   1. Not more than 1 case of obesity in the family.
   2. More than 1 case of obesity in the family.

C. Fröhlich-like obesity (boys with a female type of fat distribution)

D. Pluriglandular obesity

E. Cerebral obesity (developing in association with cerebral disease)

No case of thyrogenous obesity was found.

Obese children have obese parents more frequently than do normal children. The more obese the child, the greater is the frequency of parental obesity, especially in the mother. This familial predisposition to obesity could be due to endogenous (constitutional) or to exogenous (over-eating,

indolence) factors. The two could not be separated in the author's study, but a constitutional heredofamilial factor is believed to be common. Children from families with more than 1 obese member are more apt to become obese before 6 years of age. Those with onset after 6 years are more apt to have less than 2 obese family members.

Cerebral disease was implicated in 19 cases as follows: birth hemorrhage 9, encephalitis 6, meningitis 2, others 2. Non-cerebral disease was an initiating factor in 44 children, always in relation to reduced activity and usually to prolonged bed rest.

The birth weights tended to be high in all groups of obesity. At the time of the initial examination, 74 percent were above average height for age. For the girls, the average onset of menstruation was 1 year earlier than for normal Swedish girls. Puberty seemed to be earlier than usual for the obese boys as well, but no normal standards were available for Swedish boys. Of the 52 Fröhlich-like boys, only 10 could be so studied and none of these showed late puberal development. Acceleration of height growth begins 3 to 4 years before the menarche and was more rapid for the obese than for the normal girls. The adult height of obese children tends to be shorter than average. Skeletal age was advanced in relation to chronological age, and was normal in relation to height age. The few giants with obesity showed retarded bone age, and the few dwarfs accelerated bone age. Sixteen patients had been on thyroid therapy for 1 year or more without resultant influence on height age, as would be expected if hypothyroidism was a factor in the obesity.

The 52 children who were adequately assessed as to intellectual development were advanced in relation to chronologic age and about average in terms of height age. Whatever the factors are which stimulate the growth of obese children, they seem to exert a general influence on development.

Basal metabolic rates were determined for each child at least twice and the results were averaged. The first determination was seldom higher than the later ones by more than 5 per cent. The standards used were those of Lewis et al. Expressed as calories per hour for total surface area, the obese children were slightly lower than normal children but always within the normal $\pm$ 18 per cent variation. Calculating calories per hour per square meter of body surface in relation to age, they were definitely lower, and lowest of all in relation to weight. Calculating calories per hour in relation to height, they were definitely higher than normal, increasingly so as the degree of obesity increased. The degree of obesity had no influence when any of the other three standards were used. The standards in relation to total body surface seemed the most reliable ones to use. These calculations suggest that the extra tissues of obese children are metabolically active, probably due in part to the greater muscular activity required for moving the extra weight. The metabolic findings were alike for all types of obesity. The rates were elevated for the few patients who had received thyroid therapy. The dosages were not given.

Glucose tolerance curves were essentially normal except for a tendency toward slow return to fasting levels. As in normal persons, the curves were influenced by the previous levels of carbohydrate intake.

Normal values for sella turcica size were established by the author using the surface area on roentgenograms taken by a standard technic. Small sella areas were found to represent small hypophyseal volumes. Sella area tended to be small for cases of obesity of Type B1 which began before 6 years of age, and for those beginning in relation to non-cerebral disease. The obesity may have had some relation to deficient hypophyseal function. The number of cases of cerebral obesity was too small for evaluation. For all the other types, the mean sella size was about normal but the scatter was wider than normal, suggesting that these types may not be homogeneous in origin. No case was found with a large sella and widened entrance.

The infantile cases of obesity tended to regress spontaneously, especially those in Type A1. Untreated cases of Types B and C tended to decrease during and after puberty and then to increase again to a variable degree. Adult obesity tended to be greater in girls and for those with more than 1 obese member of the family. The groups so followed were too small for adequate assessment. The Fröhlich-like cases tended to show increasingly diffuse obesity. Their prognosis and development did not differ from the others.

Data on therapy were meagre but further studies are to be reported later. Early results were better than long-term ones. Dietary, thyroid, or combined therapy seemed to be equally effective. 165 references. 20 figures. 16 tables.

(*The author's observations and conclusions are in substantial agreement with those of Bruch. The ghost of the endocrine cause of obesity may now be deemed to have been laid. The whole problem is more complicated than was formerly thought and comprises both constitutional and emotional factors. Treatment is, on the whole, not encouraging.*—ED.)

23. Parasitic Diseases

Arachnidism. *William E. R. Greer, Robert Dawson Evans Memorial, Massachusetts Memorial Hospitals, Boston, Mass.* New England J. Med. 240: 5-8, Jan. 6, 1949.

The syndrome which follows the bite of the black-widow spider, *Latrodectus mactans*, is known as arachnidism, and presents a distinctive clinical entity. These spiders have been found in practically every state. They seem to be greatly increasing in numbers and invading the large cities. They are recovered in greatest numbers in the vicinity of human habitations, in outdoor privies, beds, garages, automobiles and tents and even high in office buildings. The nickname "black widow" given to the female arises from its habit of capturing and feeding on the much smaller male after he has served for species preservation.

The full-grown female, particularly when distended with eggs, appears to be the most poisonous. When disturbed it makes every effort to escape; this explains the relatively few bites in spite of its wide prevalence. When cornered or compressed, as between skin and clothing, it bites in self-defense. The male seldom bites a human.

The venom is fifteen times as potent as that of a rattlesnake. It appears to be a toxalbumin with its most damaging activity on nerve endings.

Immediately following the spider bite there occurs transient excruciating local pain, usually followed by rapid local edema and redness of the skin at the site. Within ten to fifteen minutes a "burning sensation" is felt that spreads centrifugally from the site of the bite and soon involves the whole body, lasting twenty or thirty minutes. This is followed by a sudden abdominal pain, often cramp-like; cramp-like pains in the legs, arms and back; a general feeling of "utter weakness"; restlessness and extreme fear, often with hysteria; headache, nausea and vomiting; and burning of the soles of the feet. (In unknown types of bites this symptom may be pathognomonic.) Children may have convulsions, which are extremely difficult to control. Other possible symptoms are paralysis, cyanosis, dyspnea and urinary retention. Physical examination may reveal local erythema with mild edema; a board-like abdomen, nontender to palpation; hypersensitivity of the skin; tender calf muscles; shock; muscle spasm with flexion of extremities; slow pulse; moderate leukocytosis; proteinuria. The syndrome may resemble acute toxic nephritis.

A wide variety of forms of therapy have been tried in the past. Alcohol seems to be contraindicated. Intravenous magnesium sulfate has been helpful in cases in which hypertension was prominent. Hypertonic glucose has given varying results. Morphine sulfate in heavy dosages has frequently been relied upon. Hot baths give some relief. A helpful antivenin (L. mactans) is listed in New and Non-Official Remedies.

Intravenous calcium gluconate, 10 cc. of 10 per cent solution, gave immediate and prolonged relief of muscle spasm and pain in six cases treated by the author. It is believed that this is the best available therapy in conjunction with other supportive measures. Calcium lactate has been ineffective orally, probably because of its incomplete and slow absorption. Calcium chloride is not recommended because of its possible necrotic action on tissues. Frequent hot baths may give relief. 20 references. 1 table.

(*Many spider victims are subjected to needless operations because the symptoms often simulate acute surgical conditions of the abdomen. Arachnidism must always be considered in the differential diagnosis of excruciating abdominal pain.*—ED.)

The Treatment of Ascaridiasis and the Dangers of Mercurial Drugs for This Purpose (*Die Askaridiasis und ihre Behandlung; Gefahren der Kuren mit Quecksilberpräparaten*). *G. Fanconi and H. Morf, Zürich, Switzerland.* Praxis 38: 903-06, Oct. 13, 1949.

The increased incidence of ascaridiasis in Switzerland before and during the War is probably attributable to the increased consumption of raw vegetables. The ill effects of this disease are perhaps due more to the mercurial preparations used in its treatment than to the parasites themselves. Other vermifuge preparations have been more or less unavailable in this period. As a rule, the ascarides behave as harmless parasites, causing no serious pathologic changes. The damage due to ingestion of mercurial drugs is much more serious.

The oldest and still fairly reliable method of treatment consists in administration of Santonin three times a day for two succeeding days. A thorough purgation is then recommended to prevent Santonin intoxication. For this purpose, calomel or castor oil is administered or phenolphthalein is given with the Santonin. After a few weeks the Santonin treatment is repeated if ova are still demonstrable in the stools. Oleum Chenopodium is more effective, but also more toxic and may cause tinnitus, transitory deafness, loss of consciousness, convulsions or even death if administered in large doses. It should be followed by a castor oil purge within two hours and should not be repeated before six weeks.

Hexylresorcinol has been recommended in doses of 0.2 to 0.4 Gm. in children from 1 to 6 years, of 0.6 to 0.8 Gm. for children of 7 to 12 years and of 1.0 Gm. for adults. This dose can be repeated after a few days. The drug may cause severe stomatitis in some cases.

The early reaction to the mercury preparations consists in acute exanthema, known as "calomel disease" which develops from five to thirteen days after onset of treatment. It is frequently mistaken for the rash of scarlet fever or measles. There is general glandular swelling and in some cases splenomegaly as well. The eosinophils of the blood may be increased. The diazo reaction of the urine is frequently positive. There are no catarrhal symptoms of the upper respiratory tract but conjunctivitis is not infrequent. Occasional meningo-encephalitis symptoms have been described. The symptoms usually subside within a few days but may recur after a period of ten days. A positive skin test with mercurial ointment or calomel can be demonstrated during the first four days in all children and after six weeks in 25% of cases.

Another type of early reaction to mercurial drugs is an acute dermatitis of eczematous type which may involve the mucosae and occasionally presents the picture of ectodermosis erosiva pluriorificialis. Mercury dermatitis may prove very stubborn and difficult to treat. The late reaction to mercurial preparations is Feer's disease, or acrodynia, which is described as a neuro-allergic reaction. In Feer's disease a careful history will nearly always disclose some form of mercurial therapy. Children failing to react

to calomel therapy with diarrhea, absorb the calomel and are thus more disposed to develop symptoms. Very young children and infants are especially susceptible. There is a high incidence of reaction to mercurial therapy also in allergic children or in children in allergic families. Patients with Feer's disease may show a marked sympathetic nervous system lability even years after the treatment has ended. Good results in the treatment of Feer's disease have been obtained by the use of BAL (British anti-Lewisite) in other countries but did not yield good results in the series under discussion here. Clinically fleeting transitions to polyradiculitis have been observed, suggesting that the latter may also be due to mercury intoxication. Two cases of lipoid nephrosis following administration of calomel have been reported. 20 references.

Poisoning from Aspidium Drugs. *Per Selander, Malmö, Sweden,* Ann. paediat. 173: 259-66, Oct. 1949.

A review of the literature indicates that most cases of serious or fatal poisoning from the use of aspidium drugs in the treatment of intestinal worm infestation occur in children. Two cases of fatal poisoning from the use of Aspidium spinulosum in the treatment of tapeworm infestation are reported, one in a boy 4½ years old after a dose of 2 Gm. of the drug, and the other in a girl after a dose of 1 Gm. Both of these children were in good general health except for the worm infestation. From these and other cases reported in the literature, the author finds it impossible to determine a dose of Aspidium drugs that is effective and at the same time harmless, especially for children who appear to be very sensitive to these drugs. In children, therefore, these drugs should not be employed. Aspidium spinulosum is probably the most dangerous. 28 references.

The Importance of the Diagnosis of Oxyuriasis (*Importancia del Diagnostico de la Oxiuriasis*). *Emilio Aleman, Havana, Cuba.* Rev. cubana pediat. 21: 144-54, March 1949.

Of 120 children seen in private practice with vague gastro-intestinal symptoms and irritability, 24 were shown to be infested with Oxyuris vermicularis by the NIH cellophane tape test. In none of these had the diagnosis been made by stool examination or actual observation of the parasites in the anal creases. The symptoms are: 1) anorexia 92%; 2) irritability 75%; 3) insomnia 62%; 4) pruritus ani 58%; 5) abdominal pain 25%; 6) eosinophilia 33%. Results of treatment with gentian violet therapy were most satisfactory (details not stated). 13 references.—*A. M. Bongiovanni.*

(*The National Institute of Health swab for detection of Oxyuris is simple and reliable. It has been previously described in the Quarterly Review of Pediatrics. Treatment of oxyuriasis in children is often unsuccessful because other members of the family simultaneously infested are not considered and serve as a source of repeated re-infestation.*—ED.)

24. Pathology, Anatomy, Bacteriology

Sudden and Unexpected Natural Death. IV. Sudden and Unexpected Natural Death in Infants and Young Children. *S. M. Rabson, Office of the Chief Medical Examiner, New York City and the St. Joseph Hospital, Fort Wayne, Ind.* J. Pediat. 34: 166-73, Feb. 1949.

Sudden and unexpected natural death in infants and young children as seen in a group of 69 patients under 5 years of age is discussed. Most of these deaths occurred before 2 years of age. Among the Negroes up to 5 years of age, the proportion of sudden and unexpected natural death greatly exceeded their proportion of the population.

Diseases of the respiratory system accounted for almost 80% of the cases and 90% of these were "acute bronchitis" or "bronchopneumonia". The diagnosis of "asphyxia by inhalation of vomitus" as the primary cause of death should be made with caution, since aspiration of vomitus is a terminal phenomenon provoked by the anoxia of the basic condition.

Gastro-intestinal causes of sudden and unexpected natural death include acute appendicitis with peritonitis, and ingestion of poisons. Before ascribing a rapidly fatal illness to poisoning, an effort should be made to perform chemical analyses. Meningitis, brain tumor and pachymeningitis hemorrhagica interna are among the relatively few maladies of the central nervous system causing sudden death.

The significance of an enlarged thymus in the production of sudden and unexpected natural death is still not clearly understood. Pulmonary embolus, acute pericarditis in pneumonia, and congenital cardiac anomaly should not be overlooked.

Some instances cannot be explained. These occur most frequently in normal infants between 4 and 8 months of age. Complete autopsy, including bacteriologic and chemical examination, should be done and the findings correlated with the clinical history. When the explanation is not clear, inability to fix the cause of death should be admitted. 11 references. 3 tables.—*R. Cohen.*

On the Cause of Familial Deaths in Early Childhood, with Particular Reference to Some Uncommon Conditions. *Hjalmar Wergeland, State Hospital, Copenhagen, Denmark.* Acta paediat. 37: 73-86, Fasc. 1, 1949.

Within the past three years a number of deaths among siblings have been observed at the Pediatric Department of the State Hospital in Copenhagen. The most common familial disease has been erythroblastosis fetalis, of which there have been 28 cases. Congenital cystic fibrosis of the pancreas, cirrhosis of the liver, malrotation of the intestine, allergy, cerebral hemangioma, spinal progressive myopathy, cystic spina bifida aperta, Gaucher's Disease, and tetany of the newborn have all been encountered. A list is given of other familial diseases which also may lead to the death of siblings during the childhood years. 29 references. 2 tables.

Carriage of Penicillin-Resistant Staphylococcus Pyogenes in Healthy Adults. *T. D. M. Martin and J. E. M. Whitehead, St. Thomas's Hospital Medical School.* Brit. M. J. 1: 173-75, Jan. 29, 1949.

Previous research is cited which shows that the incidence of penicillin-resistant staphylococcus infections is on the increase. It was decided to investigate the incidence of penicillin-resistant staphylococcus in the upper respiratory passages and on the skin of healthy adults. Of 50 individuals studied it was found that 31 carried the organism; 10 in the nose and throat only, 7 on the skin only, and 14 in the nose and throat and on the skin. Examination of the 83 strains isolated from these 31 individuals revealed 15 penicillin-resistant strains which came from 6 of the individuals. There was then an incidence of six carriers of penicillin-resistant staphylococcus among these 50 persons. Only one of the carriers had ever had penicillin treatment; he had been treated with penicillin lozenges at one time. No previous study for comparison is available to determine whether this represents an increase in the carrier rate of penicillin-resistant staphylococcus. 3 tables. 16 references.—*C. Whitlock, Jr.*

Septic Thrombus in the Ductus Venosus (Arantii) in Connection with an Exchange Transfusion. *C.J.A. Bakx and M. van de Vooren, Nymegen, Netherlands.* Maandschr. v. kindergeneesk 16: 407-11, 1949.

An infant girl suffering from morbus hemalyticus neonatorum was given an exchange transfusion twelve hours after birth, with the usual precautions of sterility. After the transfusion 0.125 Gm. of Sulfadiazine were given orally every three hours. At first all went well and the icterus diminished, but on the fifth day she began to seem pale and gray. By the ninth day she appeared septic, with distended abdomen, frequent, thin and mucoid stools, and fever of 39° C. *Staphylococcus aureus* was cultivated from the blood. Despite penicillin (80,000 units daily), the general condition became worse and death occurred on the fifteenth day. At autopsy, an infected thrombus was found in the ductus venosus (arantii) and metastatic abscesses were found in the lungs and liver.—*J. I. deBruyne.*

25. Physiology, Biochemistry

Adjustment of Electrolytes and Water Following Premature Birth. *Clement A. Smith, Simon Yudkin, Winifred Young, Alexandre Minkowski and Margaret Cushman, Harvard Medical School and the Boston Lying-In Hospital, Boston, Mass.* Pediatrics 3: 34-48, Jan. 1949.

Premature infants at the Boston Lying-In and Children's Hospitals are given no water or food for two to four days after birth. Although this period is referred to below as one of dehydration, the loss of body water may actually be advantageous to the infant. Measurements of water, electrolytes, urea, and total nitrogen have been made upon complete collections of urine during this phase and the first few days of feeding which follow it.

Eleven infants thus far investigated have shown: 1) loss of both intracellular and extracellular electrolytes during the "dehydration" phase; 2) rather uniform ability to conserve water by concentration of urine (though not to adult levels), and 3) outgo of nitrogen disproportionately less than that indicated by potassium loss from tissues. No rigid pattern of electrolyte-water-nitrogen removal and restoration has emerged. Instead, the infants have displayed either of two different patterns. One of these is marked by early loss of large amounts of sodium, water, and nitrogen. The infants of this group (who are clinically more or less edematous at birth) either re-accumulate sodium very slowly after feeding is begun or may even continue in negative sodium balance for three or four days after electrolytes are supplied in the feeding. Infants in the other group show much smaller losses during "dehydration" and their pattern of re-accumulation includes more rapid replenishment of sodium. No apparent relationship between obstetric history or fetal age and the performance of the infant was shown by these data. 19 references. 6 charts. 4 tables. —*Author's abstract.*

(Further studies such as these, carried out under different regimens, will add to our knowledge of physiology in premature infants and help in practical management. These studies also demonstrate that some premature infants can survive a four-day period without food or water. Control studies or statistical analyses are not included in the present report.

It may be questioned whether this is the best method for routine management. Starvation, and especially withholding of water, are not used as deliberate methods of treatment for any other condition, and the premature infant would seem to be especially ill-adapted for it. For example, the immaturely functioning kidneys of the premature infant are almost wholly dependent on an adequate water supply for satisfactory function.

Furthermore, one wonders how dehydration could be of direct benefit to an edematous infant. Except under very unusual circumstances, edema is not due to simple excess of water in the body. Although all the factors are by no means understood, those which are known are related to local conditions in the tissues, their relation to circulating fluids, relative hydrostatic pressures, and tissue permeabilities. Dehydration might well make things worse rather than better. The relative hydremia of newborn infants can be expected to allow for some water excretion. A highly humidified environment, as now used for small premature infants, will reduce the water loss by evaporation from skin and lungs. These are probably salutory factors during the first few days when the small premature infant's fluid intake is necessarily rather small.

During the first 24 to 48 hours of life, the small premature infant seems to do best if undisturbed in a suitable incubator with oxygen. Most pediatricians prefer to start some fluid and carbohydrate intake without much further delay. This can be achieved by the infant's own suction on

a small catheter-tipped dropper or by skillful gavage, depending on the infant. Aspiration is a real danger, but it should seldom be encountered under skilled management. Almost invariably, the infant who will suck will also swallow, and the aperture must be adjusted to his rate of swallowing. The danger lies in squirting fluid into the baby's mouth and hoping he will swallow it. The inactive baby must be gavaged frequently with small amounts. A nurse with patience and experience is indispensable during this early period.

The most critical period in the life of a small premature infant is the first two or three days. Survival during this period seems to be largely dependent on factors over which the physician has relatively little control. A second critical period comes toward the end of the first week. One feels that this second period is related to the effects of starvation and dehydration, and to the results of unskilled attempts at feeding.

The relation of the retentions of potassium to balances of sodium and nitrogen in the authors' data suggests that some infants may have muscles containing a relative excess of sodium and deficiency of potassium. This finding, if confirmed by direct analyses of muscles, might be related to the adrenals which are relatively large in premature infants. Certain steroids produced by adrenals increase the muscle content of sodium and decrease the content of potassium.—ED.)

Blood and Extracellular Fluid Studies in Chronic Malnutrition in Infancy. *Frank Gollan, Italian Medical Nutrition Mission, University of Minnesota Medical School, Minneapolis, Minn.* J. Clin. Invest. 27: 352-63, May 1948.

Blood and extracellular fluid studies were carried out in 13 severely malnourished infants in Naples, Italy during 1945-46. These infants had suffered originally from gastrointestinal disturbances, particularly diarrhea and vomiting, but after diarrheal attacks ceased they still failed to gain weight. None had nutritional edema. Their dietary regimen consisted of milk mixtures or whole milk with added flour. Their fluid intake was comparatively low since anorexia was prevalent and additional fluid was offered only occasionally. Compared with normal infants of the same age there had occurred a loss of about 54 per cent of actual weight and of 45 per cent of calculated weight; height was deficient by 18 per cent and body surface by 38 per cent.

The hematocrit, hemoglobin concentration and total circulating hemoglobin were reduced, as were the concentration of plasma protein and the total amount of circulating plasma protein. The ratios of total circulating plasma protein to body measurements showed a marked increase. Serum albumin was low whereas globulin showed an increase. The nonprotein nitrogen was within the normal range. The absolute values of plasma volume were the same as in normal infants of the same age group. The disappearance rate from the blood stream of the dye T-1824 was increased. The absolute values of extracellular fluid space were re-

duced. The concentrations of sodium and chloride in the plasma were lowered slightly. Liver biopsies in some of the cases failed to show any destructive lesions of the parenchyma. The absolute values of blood volume were reduced. The ratio of blood volume to unit body weight and surface showed an increase.

Marasmus in infancy is thus much more than a simple deficiency disease. Despite the marked decrease in the hemoglobin and plasma protein the extremely low levels of blood proteins, found in malnutrition and starvation in the adult, were not seen. The loss of hemoglobin was relatively much greater than that of other tissues. The reduction in total circulating plasma protein was due entirely to a marked decrease in the albumin fraction. The cellular elements of the body account for the severe loss of weight. The hydration of the extracellular fluid can be expected to be normal or slightly reduced in malnutrition if water deprivation is also present, severely reduced if associated with diarrhea, and manifesting itself in nutritional edema if ample fluid and salt intake are permitted.

These infants did not show signs of edema when the fluid intake was low. If intravenous fluid therapy had to be administered, however, the children developed edema very rapidly, proving that the inclination to edema in malnutrition can be made manifest if the means for edema are supplied. An increase in capillary permeability is suggested by the increase in the disappearance rate of the dye T-1824. The observations also strengthen the belief that hypoproteinemia and edema are coexistent but not causative factors in malnutrition. The low rate of blood flow, which in some studies has been 80 to 90 per cent less than normal, and the reduced oxygen saturation and content of the venous blood may have a closer causative relation to nutritional edema than the low plasma protein concentration.

"Treatment of the late stages of infantile marasmus is still unsatisfactory." Intravenous fluid therapy when food cannot be taken orally is contraindicated because plasma volume and extracellular fluid spaces are already high, and more fluid and salt will only induce edema. "Transfusions have a temporary value only unless the underlying cause of body destruction is found and remedied." Failure of absorption seems to be an essential lesion in the irreversible stages of starvation. "In the case of a completely emaciated 13-year-old girl, well-being and gain in weight could be achieved as long as blood transfusions and large amounts of casein hydrolysates and dextrose by mouth were administered. When casein hydrolysates were no longer available we had to change to milk mixtures which were not tolerated and caused irritation, diarrhea and death." 46 references. 9 tables. 4 figures.

(Dr. Gollan's observations emphasize the familiar findings of a seemingly critical nutritional level in marasmus. Once an emaciated infant drops below this level, all the resources of parenteral feeding and trans-

fusion as known today seem to be of no avail in effecting recovery. The position of this level has been moved back by such recent advances as parenteral amino acid solutions and infusions containing potassium ion, so that more and more infants are being saved by skilled fluid therapy. Nevertheless, knowledge of the biochemical disturbance in marasmus is not yet completely satisfactory. Fundamental inquiries into the disturbed body functioning are still much needed.—ED.

The Occurrence of Edema in Infantile Gastroenteritis. *J. Berkeley, Office of Public Health, Westmorland, Scotland.* Arch. Dis. Childhood 23: 114-18, June 1948.

One hundred and seventy-six cases of infantile gastroenteritis were studied in a hospital between January 1945 and June 1946. Edema of the dorsum of the hands and feet and occasionally over the sacrum and periorbital areas was noted in 19.5 per cent of these cases. The edema was confined to patients under 16 months of age and never appeared during the first 4 days of illness. It subsided spontaneously in 2 to 8 days and recurred only once. Malnutrition, overhydration, vitamin B deficiency and other specific diseases causing edema were ruled out. The etiology of this edema is unknown but it is thought to have been due to impaired function of the liver, kidneys or capillary endothelium. 19 references. 2 tables.—*A. N. Evans.*

(*The treatment included infusions of 5 per cent glucose in half-strength physiologic saline. This solution contains more salt than is now recommended in the treatment of infants with diarrhea. It must be admitted, however, that edema appears not uncommonly in infants treated with solutions of low salt content, and the cause is not always apparent.* —ED.)

Idiopathic Renal Acidosis in an Infant with Excessive Loss of Bicarbonate in the Urine. *Thomas Stapleton, University of Sheffield, Sheffield, England.* Lancet 2: 683-85, Apr. 23, 1949.

A 10-month old infant with vomiting, constipation, persistent acidosis and failure to gain weight, whose symptoms began at 5½ months of age, was observed. The urine was alkaline, the plasma bicarbonate was low (29 vol. %), the plasma chlorides were elevated (740 mg. per 100 ml.) and the urinary bicarbonate was elevated (often as high as 166 to 178 vol. %). The disturbance subsided after administration of a sodium citrate mixture for several months. A stock mixture was made up of 60 Gm. of citric acid and 100 Gm. of sodium citrate in 1000 ml. of water, and 10 cc. of this was given six times daily, each dose being diluted to 45 ml. with water. This treatment corrected the acidosis and relieved the symptoms.

It is suggested that the underlying disorder is a temporary failure of bicarbonate re-absorption by the renal tubules, the case being of the same type as those of Lightwood (1935), Butler et al. (1936), Hartmann (1939), and Payne (1948). The continued excretion of bicarbonate in the presence of a low plasma CO_2-combining power suggests that fundamental disturbance was an inability to conserve bicarbonate on the part of the renal tubules rather than to an inability to form ammonia.

Early recognition of this condition depends on estimations of both plasma bicarbonate and urinary bicarbonate. The syndrome must be kept in mind as a cause of chronic failure to thrive in infancy. It appears to be sometimes temporary. Alkali by mouth may compensate for the loss of bicarbonate in the urine until recovery takes place. 1 figure. 2 tables. 13 references.

Urinary Glycocyamine, Creatine and Creatinine. I. Their Excretion by Normal Infants and Children. *Randolph G. Flood and Roy W. Pinelli, St. Mary's Hospital, San Francisco, Calif.* Am. J. Dis. Child. 77: 740-45, June 1949.

Creatine is believed to be formed within the body by synthesis from glycine and arginine according to the following route:

$$\text{Arginine} + \text{glycine} \xrightarrow{\text{in kidney}} \text{glycocyamine}$$

$$\text{Glycocyamine} + CH_3 \xrightarrow{\text{in liver}} \text{creatine}$$

$$\text{Creatine} \xrightarrow{\text{in muscles}} \text{creatinine} + \text{water}$$

Glycocyamine (guanidoacetic acid is an essential intermediary in the synthesis of creatinine.

The urinary excretion of glycocyamine, creatine and creatinine was determined in 17 normal children, ranging in age from prematurity to 13 years. The urinary glycocyamine tended to be excreted in equivalent amounts per kilogram of body weight in twenty-four hours for children of all age groups (range: 0.68 to 1.70 mg.). The total excretion of glycocyamine in twenty-four hours proved to be affected only slightly by a considerable reduction in the daily output of urine. There was a trend for the total creatinine excreted in twenty-four hours per kilogram of body weight and the glycocyamine-creatinine coefficient to increase with advancing age. The excretion of creatine was variable and unpredictable in children of all age groups. 7 references. 2 tables.

Urinary Glycocyamine, Creatine and Creatinine. II. Their Excretion in Children with the Nephrotic Syndrome. *Randolph G. Flood and Roy W. Pinelli, St. Mary's Hospital, San Francisco, Calif.* Am. J. Dis. Child. 78: 67-71, July 1949.

Nephrotic children demonstrated a tremendous increase in the output of urinary glycocyamine above the normal (range: 3.5 to 3.7 mg. per Kg. per 24 hours.) The creatinine excreted over a period of twenty-four hours was somewhat reduced. The creatine excretion was within normal limits. These data suggest that the increased output of glycocyamine in nephrosis is due either to increased permeability, to impaired reabsorption by the tubules, or to deficient transmethylation in the liver cells. The function of the striated muscles producing the anhydride creatinine from creatine is apparently intact in the nephrotic child.

The Biologic Role and Therapeutic Effect of Potassium in the Toxic Diarrheas of Infancy (*Le potassium dans les toxicoses du premier âge. Role biologique—Effet thérapeutique.*) *Sorel, Valdigui, Bardier and Pigassou, Toulouse, France.* Presse méd. 73: 882-83, Dec. 18, 1948.

Twenty infants dying with severe toxic diarrhea were given 1.0-1.5 ml. of a warm isotonic solution of potassium acid phosphate injected into the lateral ventricle. Some were treated on arrival, others after failure of several days of hospital therapy standard in France. All exhibited a dramatic response in a few minutes: the pulse became stronger and more regular, respiration less shallow, color returned to the face and the eyes lost their glassy stare. This early improvement was maintained for a few hours but in some cases, after repeated injections, lasted several days. Four moribund infants were saved, of whom three also had antrotomies. Except 1 case of transitory facial edema, no ill effects were observed.

This therapy was based on the successful Russian treatment of traumatic shock by immediate intracisternal injections of potassium phosphate and on finding low cerebrospinal fluid potassium values, 4.6-8.0 mg. per 100 ml. in 18 cases of severe diarrhea. Three normal infants and six dying of various other diseases with neurologic signs, e.g. meningitis, encephalitis, chorea, had the normal adult K level, 12 mg. per 100 ml. of cerebrospinal fluid. The low K values were associated with the degree of toxicity and rose progressively with recovery. They were not related to parenteral infections, e.g. mastoiditis, associated with diarrhea.

In four of the cases with severe diarrhea, simultaneous cerebrospinal fluid calcium determinations were done and found to be normal, 6.0 mg. per 100 ml. Whether this lowered K/CA ratio was the cause or the effect of the disturbance in the diencephalic vegetative centers was considered. Applied directly to these centers, K had a sympathetic and Ca a vagal effect which is opposite to their peripheral actions. 27 references. 1 graph. —*L. V. dos Remedios.*

(Direct intracisternal medication has been common practice in Russia not only for shock but also for peptic ulcer, otosclerosis, tetanus and the viral encephalitides. Current therapy for severe diarrhea in France seems to be intravenous injections of serum with procaine, glucose and saline. Routine myringotomy and antrotomy are advocated even with no evidence of otologic infection.

The case-fatality rate of 80 per cent is excessive even for severely dehydrated and acidotic infants. In infants below 12 months of age in the best American hospitals, the rate is between 1 and 50 per cent depending on the age. The low serum K level in severe diarrhea might be the cause of the low K level in the cerebrospinal fluid.

The treatment must be regarded as experimental and potentially dangerous since one hesitates to introduce substances whose action is not understood into the ventricles. Analyses of tissues indicate that the brain loses potassium when the concentration of sodium in serum is reduced (Yannet, H.: Am. J. Physiol, 128: 683, 1940) and as a result of injections of desoxycorticosterone acetate. It is not known whether depletion of body potassium leads to loss of potassium from the brain but that is likely. This report brings out the necessity for further study of brain electrolyte.

For comment on the use of potassium in diarrhea, see the "Quarterly Review of Pediatrics" for February 1949, *p.* 39.—ED.)

Absence of Fructose from Human Cord Blood. *M. J. Karvonen, Children's Clinic, University of Helsinki, Helsinki, Finland.* Acta pediat. 37: 68-72, Fasc. 1, 1949.

Studies of 30 specimens of human umbilical cord blood from premature and fullterm infants, revealed the presence of fructose in trace amounts (1 mg. per 100 cc.) in only three subjects. In the rest no positive reaction was observed. The values for total sugar (Somogyi method) varied between 36 and 116 mg. per 100 cc. The average and its standard deviation was 78± 28 mg. By contrast, the concentration of fructose in the fetal blood of sheep remains high until delivery, after which it rapidly disappears. 9 references. 1 table.

26. Psychology, Psychiatry

See Contents for Related Articles

27. Public Health, Epidemiology

The Effect of Specific Therapy on the Common Contagious Diseases. *Jean V. Cooke, St. Louis, Mo.* J. Pediat. 35: 275-95, Sept. 1949.

The effects of specific therapy upon certain of the common contagious diseases were evaluated by analyzing the mortality statistics for these diseases in recent years. The data were obtained from annual reports of vital statistics by the Federal Bureau of the Census. The mortality rate for children alone was considered in some instances because a high percentage of deaths in contagious diseases occurs during childhood. Only diphtheria, scarlet fever and erysipelas, measles, whooping cough and meningococcus meningitis are discussed separately.

Both the incidence and mortality rate of diphtheria showed marked reductions with and after the advent of specific active immunization. The general mortality fell from over 20 to about 15 per 100,000 with increased use of diphtheria antitoxin. The introduction of toxoid and its increasing use for specific active immunization against diphtheria brought further reductions, the general mortality rate falling to 1 per 100,000 in 1940. The mortality rate for children under 5 years of age fell from 30 per 100,000 in 1930 to about 7 in 1945 and the rate for children under 15 fell from 15 to 3 in the same period. No further decrease has occurred in recent years, however, indicating a need for continued and more extensive active immunization of children.

Sulfonamide therapy has produced a rather sharp and striking reduction in mortality from scarlet fever and other streptococcal infections including erysipelas, the mortality rate of scarlet fever falling from just over 2 per 100,000 in 1937 to 0.3 in 1941. While still clinically prevalent, scarlet fever is no longer dangerous to life in childhood.

The incidence of whooping cough decidedly decreased during 1944 and 1945 and this decrease has continued, apparently as a result of active pertussis immunization. The fact that more than 70% of all deaths from pertussis occur during the first year of life emphasized the need for earlier active immunizaton. Specific sulfonamide therapy reduced the general mortality from whooping cough, apparently from the effect of the sulfonamides upon the associated bronchopneumonia.

About one-half of all deaths from measles occur in children under 2 years of age and about two-thirds in those under 5 years. The mortality rate definitely decreased after 1937, probably as a result of the effect of sulfonamide therapy upon the secondary pneumonia. Sufficient data are not yet available to determine the effect of immune globulin and gamma globulin upon measles. Specific sulfonamide therapy has also markedly reduced the general mortality of meningococcus meningitis. Further reductions will probably result from the more frequent use of diagnostic lumbar puncture in poorly defined febrile diseases and the increasing use of penicillin therapy in meningococcus meningitis.

These statistics show that specific therapy has been definitely beneficial in the treatment of the common contagious diseases of children. Further improvement may be expected from the newer specific treatments, especially antibiotics. 10 tables. 12 graphs.

Infant Mortality in France During the Third and Fourth Quarters of 1948. *Mortalité Foeto-infantile en* 1948 (*Troisiéme Trimestre, Quatriéme Trimestre*). *F. Alison and M. Corone, Paris.* Bull. Inst. nat. hyg. 4: 337-58, Sept. 1949.

Infant mortality was 45 per 1000 live births during the third fuarter of 1948, falling below 50 for the first time in France. This represents a decline of 24% from the similar period in 1947. The decrease was most marked in the age range 3 to 12 months and hardly notable in the first

week of life. Gastro-enteritis dropped precipitously from 18.9 to 7.9 (58 per cent) in one year. Prematurity and bronchopneumonia continued as important causes, falling only slightly in one year from 15.1 to 13.5 and 5.5 to 5.3, respectively.

In the fourth quarter of 1948 infant mortality was 50 per 1000 live births, 12% lower than the comparable period in 1947. The diminution was confined to the first six months of life. Again gastro-enteritis diminished as a causative factor, with a slight rise in bronchopneumonia. The following tabulation covers the entire years 1947 and 1948.

	Deaths per 1000 live births	
	1947	1948
Over-all fetal-infant mortality	92	75
Stillbirths	27.5	25.3
Infant mortality (birth to 1 year)	66	51
Neonatal mortality (first month)	25	21

10 figures. 13 tables.—*A. M. Bongiovanni.*

Epidemiological Statistics, France. Infectious Diseases (*Epidemiologie*). Bull. Inst. nat. hyg., Paris 4: 359-80, Sept. 1949.

The total number of cases of the following diseases in France are tabulated for the first quarter of each year designated:

	1948	1949
typhoid	1,777	1,619
diphtheria	2,527	1,619
rubeola	4,408	19,208
scarlatina	5,279	3,006
poliomyelitis	83	53
cerebrospinal meningitis	254	326
undulant fever	350	269
pertussis	960	1,824
tetanus	73	84

Typhoid infections for early 1949 had actually fallen off more dramatically since the last quarter of 1948 than would be suspected from the above. In addition to the above, 6 cases of tularemia and one of typhus had been reported. Monthly tabulations from the various local departments of health are recorded. 9 figures. 7 tables.—*A. M. Bongiovanni.*

Further Progress in Reducing Maternal and Infant Mortality. The Record of 1945 and 1946. Children's Bureau Statistical Series, Number 4. *George Wolff and Eleanor P. Hunt.* 28 pp. 1949. Price 15 cents. Federal Security Agency, Social Security Administration, Children's Bureau, Washington 25, D. C.

This report summarizes the record in safeguarding the lives of childbearing women and their babies in 1945 and 1946, based on data from the National Office of Vital Statistics.

Birth rate. The national birth rate dropped off in 1945 for a second consecutive year from the wartime high it had reached in 1943. The rate in 1943 had stood at 21.5 births per 1,000 persons in our population (including the armed forces overseas). In 1944 it had dropped back to 20.2. In 1945 it fell to 19.6. In 1946 it climbed to 23.3 per 1,000 total population. This was the highest rate recorded since 1921; the rate increased in every State except Florida.

Number of births. Registered live births in the United States in 1945 numbered 2,735,456. This figure was some 60,000 lower than that for 1944 and nearly 200,000 below the wartime high (2,934,860) of 1943. In 1946 the registered live births were 3,288,672, exceeding the number registered in any previous year. Since some live births in the United States each year are not registered, the total number of live births for 1945 is estimated at 2,894,000 and for 1946 at 3,458,000. The total number similarly estimated for 1943 was 3,127,000. In 1945, birth rates per 1,000 civilian population ranged from a low of 18.1 in New Hampshire to a high of 31.3 in New Mexico. In 1946 the lowest rate, 10.6, was in Massachusetts, while New Mexico with 34.9 continued to have the highest.

Differences between white and nonwhite groups. For the white population the birth rate rose from 19.2 in 1945 to 23.0 in 1946, an increase of 19.8 per cent. The rate for the nonwhite population went from 23.3 to 25.3, an increase of 8.6 per cent. In 1945, 11.9 per cent of the registered live births were Negro. In 1946, 10.9 per cent were Negro. In each year hardly more than one-half of 1 per cent, 15,629 in 1945 and 16,913 in 1946, belonged to other groups classed as nonwhite (Indian, Japanese, Chinese, and all other).

Hospitalization for delivery. The period from 1935 to 1946 has seen a remarkable rise in the proportion of mothers hospitalized for delivery of their babies. The proportion has risen from a little over one-third (36.9 per cent) in 1935, the first year for which such information was available, to more than four-fifths (82.4 per cent) in 1946. This extension of hospital service has been one of the factors in the reduction of mortality among mothers and infants during childbirth. Among white mothers, hospitalization for delivery increased from 39.6 per cent in 1935 to 87.1 per cent in 1946. About 6 per cent of white births were unattended by a medical person in 1935, and less than 2 percent in 1946. Hospitalization of nonwhite mothers went up from 18.2 per cent in 1935 to 45.2 per cent in 1946. Hospitalization for nonwhite mothers in 1946 was just over half that for white mothers and was lower than the 48.2 per cent for white mothers in 1937. The proportion of nonwhite mothers delivered at home decreased from 26.4 per cent in 1935 to 20.0 per cent in 1946. For women living in urban areas, 9 out of 10 of those who bore children in 1946 were hospitalized for delivery. For mothers living in rural areas the proportion hospitalized in 1946 was 67.1 per cent.

Maternal Mortality. Deaths of mothers in childbearing had already reached the low rate of 22.8 per 10,000 live births in 1944. Further improvement was made in 1945 and again in 1946. Against 6,369 in 1944, maternal deaths numbered 5,668 in 1945 and 5,153 in 1946. The maternal death rate for the country as a whole dropped to 20.7 in 1945. In 1946 it fell again to a new low of 15.7. The downward trend in maternal mortality since 1933 has been more pronounced for whites than for nonwhites.

Causes of maternal deaths. Of the 5,668 maternal deaths in 1945, 35.3 per cent were attributed to puerperal infection, 30.5 per cent to hemorrhage, trauma, or shock, 24.8 per cent to puerperal toxemia, and 9.4 per cent to other puerperal causes.

Infant Mortality. From 1933 to 1946 the rate per 1,000 live births declined from 58.1 to 33.8 for all infants, or 42 per cent. The rate for white infants dropped from 52.8 to 31.8, and for nonwhite infants from 91.3 to 49.4. Infant deaths numbered 111,063 in 1946, 104,684 in 1945, and 111,127 in 1944. Although the number of deaths under 1 year was greater in 1946 than in 1945, the death rate was only 33.8 per 1,000 live births in 1946 as compared with 38.3 in 1945. In 1946 there were 92,510 deaths of white infants and 18,553 of nonwhite infants, the corresponding rates per 1,000 live births being 31.8 and 49.5 (Table 15). Among the whites there were 53,704 male and 38,806 female deaths; among the nonwhites, 10,244 male and 8,309 female. The considerable excess of male over female deaths under 1 year is only partly explained by the fact that more male than female babies are born each year. This sex ratio at birth in the United States varies between 105 and 106 males to 100 females. Even when the deaths of male and female infants are related to the respective number of births in each sex, the boys have a distinctly higher infant death rate than the girls, in white and nonwhite groups alike. The higher mortality of the male starts with the first day of life.

Causes of infant deaths. The leading causes of infant deaths are shown in Table 17, together with some other causes that have special medical interest such as acute infectious diseases, syphilis, dysentery, and tuberculosis.

In considering how to reduce infant mortality further, it is important to note that mortality in the first month has not decreased to the same degree as mortality in the succeeding months of infancy. The proportion of neonatal deaths was 53 per cent in 1925, and more than 71 per cent in 1946. The total number of lives lost because of still births and neonatal deaths amounted to more than 150,000 in 1946 and more than 130,000 in 1945, or 46.8 and 48.2 per 1,000 live births. In each year there were twice as many stillbirths per 1,000 live births for nonwhite mothers as for

white mothers (Table 15). *"To reduce this great loss of life during the prenatal and neonatal periods is at the present time one of the most important tasks in preventive medicine."* 19 tables.

Table 15

Infant mortality by age and race, and stillbirths by race: United States, 1946 *and* 1945

Age at death	1946			1945		
	Total	White	Nonwhite	Total	White	Nonwhite
	Number					
Deaths under 1 year	111,063	92,510	18,553	104, 684	85,295	19,389
Under 1 day	37,603	32,564	5,039	30,674	26,354	4,320
1 day to under 1 week	28,445	24,334	4,111	23,318	19,494	3,824
1 week to under 1 month	13,031	10,349	2,682	12,601	9,867	2,734
Under 1 month	79,079	67,247	11,832	66,593	55,715	10,878
1 month to under 1 year	31,984	25,263	6,721	38,091	29,580	8,511
	Percent distribution					
Deaths under 1 year	100.0	100.0	100.0	100.0	100.0	100.0
Under 1 day	33.9	35.2	27.2	29.3	30.9	22.3
1 day to under 1 week	25.6	26.3	22.2	22.3	22.9	19.7
1 week to under 1 month	11.7	11.2	14.5	12.0	11.6	14.1
Under 1 month	71.2	72.7	63.8	63.6	65.3	56.1
1 month to under 1 year	28.8	27.3	36.2	36.4	34.7	43.9
	Rate per 1,000 live births					
Deaths under 1 year	33.8	31.8	49.5	38.3	35.6	57.0
Under 1 day	11.4	11.2	13.4	11.2	11.0	12.7
1 day to under 1 week	8.6	8.4	11.0	8.5	8.1	11.3
1 week to under 1 month	4.0	3.6	7.2	4.6	4.1	8.0
Under 1 month	24.0	23.1	31.5	24.3	23.3	32.0
1 month to under 1 year	9.7	8.7	17.9	13.9	12.3	25.0
	Number					
Stillbirths[1]	74,849	59,494	15,355	65,513	51,242	14,271
	Ratio per 1,000 live births					
Stillbirths[1]	22.8	20.4	40.9	23.9	21.4	42.0

Table 17

Infant and neonatal deaths and death rates for selected causes by race: United States, 1946

(Exclusive of stillbirths)

CAUSE OF DEATH IN RANK ORDER OF TOTAL DEATHS, 1946	DEATHS UNDER 1 YEAR			DEATHS UNDER 1 MONTH		
	Total	White	Nonwhite	Total	White	Nonwhite
All causes	111,063	92,510	18,553	79,079	67,247	11,832
Premature birth	39,824	34,057	5,767	38,939	33,399	5,540
Congenital malformations	14,912	13,874	1,038	9,994	9,346	648
Pneumonia and influenza	12,657	9,497	3,160	2,887	2,204	683
Injury at birth	11,738	10,493	1,245	11,508	10,283	1,225
Diarrhea, enteritis, etc	5,498	4,473	1,025	1,356	1,089	267
Accidents	2,915	2,334	581	580	451	129
Congenital debility	1,797	1,301	496	1,053	758	295
Acute infectious diseases[1]	1,526	1,203	323	97	73	24
Syphilis	538	193	345	315	101	214
Dysentery	480	392	88	62	46	16
Tuberculosis (all forms)	406	271	135	10	7	3
Ill-defined and unknown causes	4,129	2,025	2,104	2,462	1,118	1,344

CAUSE OF DEATH IN RANK ORDER OF TOTAL DEATHS, 1946	RATE PER 1,000 LIVE BIRTHS					
	DEATHS UNDER 1 YEAR			DEATHS UNDER 1 MONTH		
	Total	White	Nonwhite	Total	White	Nonwhite
All causes	33.8	31.8	49.5	24.0	23.1	31.5
Premature birth	12.1	11.7	15.4	11.8	11.5	14.8
Congenital malformations	4.5	4.8	2.8	3.0	3.2	1.7
Pneumonia and influenza	3.8	3.3	8.4	0.9	0.8	1.8
Injury at birth	3.6	3.6	3.3	3.5	3.5	3.3
Diarrhea, enteritis, etc	1.7	1.5	2.7	0.4	0.4	0.7
Accidents	0.9	0.8	1.5	0.2	0.2	0.3
Congenital debility	0.5	0.4	1.3	0.3	0.3	0.8
Acute infectious diseases[1]	0.5	0.4	0.9	0.0	0.0	0.1
Syphilis	0.2	0.1	0.9	0.1	0.0	0.6
Dysentery	0.1	0.1	0.2	0.0	0.0	0.0
Tuberculosis (all forms)	0.1	0.1	0.4	0.0	0.0	0.0
Ill-defined and unknown causes	1.3	0.7	5.6	0.7	0.4	3.6

[1] Deaths from acute infectious diseases: Measles, 297; scarlet fever, 6; whooping cough, 869; diphtheria, 84; meningococcus meningitis, 270.

28. Respiratory System

Asphyxia Neonatorum and the Vernix Membrane. *Fred Dick, Jr. and Edgar R. Pund, Augusta, Ga.* Arch. Path. 47: 307-16, April 1949.

A vernix caseosa membrane plugging the bronchioles and lining the alveolar ducts and walls may be responsible for a significant number of asphyxial neonatal deaths. Various investigators suggest that the membrane is caused by aspiration of amniotic contents in utero following intrauterine anoxemia.

Costal retraction and increasing respiratory difficulty, with dyspnea and cyanosis in spite of oxygen-carbon dioxide insufflation, are present in infants who live from a period of a few hours to four days after birth. The lungs are liver-like and sink in water. An eosin-staining hyaline membrane plastered against the walls of opened alveoli, alveolar ducts and some bronchioles is seen. Also present is vernix caseosa of exceptionally high lipid content and containing many epidermal cells plugging the terminal bronchioles where these join the alveolar ducts. Only the membrane-lined alveoli and alveolar ducts remain open. Most of the remainder of the lung is collapsed, giving a picture of atelectasis due to obstruction or resorption. In some instances an associated congenital pneumonia is seen, probably explained by the abnormal stickiness of the respiratory passages permitting greater adhesive surfaces for the vernix membrane. 15 references. 2 figures.—*R. Cohen*

Studies of the Control of Acute Respiratory Diseases Among Naval Recruits. I. A Review of a Four-Year Experience with Ultraviolet Irradiation and Dust Suppressive Measures, 1943-1947. *T. L. Willmin, Capt. (MC) USN, Alexander Hollaender and Alexander D. Langmuir, Bureau of Medicine and Surgery, Navy Department, Washington, D. C.* Am. J. Hygiene 48: 227-32, September 1948.

The U. S. Navy Department is conducting an experimental program of evaluating methods of air sanitation for the control of acute respiratory diseases among recruits. For the past 4 years the value of ultraviolet irradiation of the air in barracks and other common meeting places has been evaluated with groups of men numbering 1000 to 5000 men, with comparable controls. In each of these years, the respiratory illnesses in the irradiated groups were consistently lower than in the control groups. Reductions as great as 20 to 25 per cent were frequently observed, though at other times only slight reductions of doubtful significance were noted.

It is concluded that ultraviolet irradiation has a partial effect on certain types of respiratory disease which occur among recruits. Considerably greater reductions must be effected before this procedure can be recommended for more general use. The development of practical and effective control measures depends largely upon future advances. 6 references. 1 figure.

(Ultraviolet irradiation can kill respiratory tract bacteria and viruses which float in the air if the exposure is adequate, but it does not furnish 100 per cent protection against infections caused by these agents.—ED.)

29. Skin, Teeth, Hair

Congenital Dermal Sinuses As a Cause of Meningitis, Intraspinal Abscess and Intracranial Abscess. *Lester A. Mount, Columbia University College of Physicians and Surgeons and the Neurological Institute of New York, New York, N. Y.* J. A. M. A. 139: 1263-68, Apr. 30, 1949.

Congenital dermal sinuses extend inward from the surface for varying distances and frequently connect the central nervous system or its coverings with the surface of the body. The inner end of the sinus may expand to form a dermoid or epidermoid cyst. Superficially they appear as small dimples or pinpoint sinuses in the midline, at any point from the occipital to the sacral regions. The sinus opening may be surrounded by hair, a pigmented area or a capillary hemangioma. Hair or sebaceous material may project from the bottom of the dimple. A cordlike structure is often palpable, extending inward from the opening. Infection may be present. There is limitation of movement of the spine in the involved area. Spina bifida or grooving of the upper or lower surface of a single spinous process is often present. Bacteria enter through these sinuses and produce infection in meninges, spinal cord, brain, subcutaneous tissues or erector spinae muscles.

Five cases with secondary infection of the central nervous system are reported in addition to the 19 already on record. Most of the patients were under the age of 5 years, but one patient was 18. The results of surgical therapy are very favorable. With earlier recognition the results will be even better. If possible, the sinus should be excised before infection occurs. It is important to make a careful search for a congenital dermal sinus in any patient having pyogenic meningitis, rapid spinal cord compression or a rapidly expanding intracranial mass. 14 references. 4 figures.

(*This lesion is much more common than the limited number of recorded cases would suggest. As is stated, every child with meningitis or related disorder should be inspected for the presence of a congenital dermal sinus, from occiput to sacrum.*—ED.)

30. Social, Economic and Organizational Problems

See Contents for Related Articles

31. Surgery, Anesthesia

New Concepts of the Etiology, Diagnosis and Treatment of Congenital Megacolon (Hirschsprung's Disease). *Ovar Swenson, Edward B. D. Neuhauser and Lawrence K. Pickett, Children's Hospital, Boston, Mass.* Pediatrics 4: 201-09, Aug. 1949.

A study of 26 patients with congenital megacolon is summarized. The clinical features of the disease were: 1) onset of symptoms in the first few weeks of life; 2) preponderance of males; 3) history and physical

findings consistent with partial obstruction of the lower part of the colon, the severity of the symptoms and signs being related to the degree of obstruction. These latter symptoms and signs were: severe constipation and bouts of obstipation, abdominal cramps and vomiting, audible gurgles from the abdomen, abdominal distention of varying degree, and an empty ampulla on rectal examination.

Fluoroscopic examination of the rectum and sigmoid from the oblique projection, after a small quantity of barium had been allowed to run in, showed a portion of rectum or rectosigmoid, often up to 10 cm. in length, consistently less than normal in caliber. The contour of the segment was frequently irregular. Often a turbulent and purposeless peristaltic activity could be seen. Occasionally reverse peristalsis, but more often no peristaltic activity was seen. This was believed due to a partial obstruction of the rectum and rectosigmoid. Colostomies above this bowel segment in 3 patients caused all symptoms of Hirschsprung's disease to disappear. Closure of the colostomy caused a resumption of symptoms, and reopening it relieved the symptoms. Colostomies on 12 other patients completely relieved their symptoms and the large hypertrophied colon decreased markedly in size. At operation the size of the malfunctioning segment of bowel was easily demonstrated to be normal or smaller than normal below the hypertrophied colon.

Since most of the abnormal segments extended down to the anus, the authors devised a special pull-through type of resection, which they describe in detail. The operation has been performed on 23 patients with no deaths. All now appear to be normal children. They have a normal urge to defecate and are continent. The authors emphasize that a true organic stenosis of the anus or rectum may occasionally be encountered in a patient with the clinical picture of congenital megacolon, and such a lesion should be looked for. They also feel that a medical regimen should be tried in true congenital megacolon and operation resorted to only when medical therapy has been unsuccessful. 4 references. 8 figures.—*H. E. Butson.*

Hirschsprung's Disease: A New Concept of the Etiology. Operative Results in Thirty-Four Patients. *Orvar Swenson, Harold F. Rheinlander, and Israel Diamond, M.D., Boston, Mass.* New England J. Med. 241: 551-56, Oct. 13, 1949.

The lesion which produces Hirschsprung's disease has been demonstrated by a special type of barium enema to be a dyskinesia of the rectum and rectosigmoid. Excision of this segment of malfunctioning bowel in 34 patients has resulted in complete relief of their symptoms. There was one postoperative death. Most follow-ups are between one and two years. There has been no recurrence in these patients.

Multiple balloon studies have been made on some of these patients to record the motility of the colon in Hirschsprung's disease. A failure of

relaxation and an absence of peristalsis have been demonstrated in the malfunctioning bowel. A study of histologic sections of the affected bowel demonstrates an absence of myenteric plexuses. 36 references. 3 figures. —*Authors' abstract.*

On the Surgical Treatment of Idiopathic Megacolon (Over de heelkundige behandlung van het idiopathisch megacolon). *Chr. van Gelderen, Amsterdam, the Netherlands.* Maandschr. v. Kindergeneesk, 16: 504-15, 1948.

Two patients with idiopathic megacolon were apparently successfully treated by sympathectomy. In the first case, a 19 year old male, the superior hypogastric plexus was extirpated, together with lumbar sympathectomy. In the second case, a 12 year old boy, only lumbar sympathectomy was done. The indication for this operation was furnished by functional examination, performed by administering parasympathetic drugs (doryl), measuring the pressure in colon and bladder after filling of these organs, and by giving segmental spinal anesthesia. In the first patient the bladder was atonic. Injection of doryl was followed by an increase of bladder pressure as well as by contraction of the intestine. In the second patient the bladder was not atonic and therefore extirpation of the hypogastric plexus was not deemed necessary. Operation was followed in each case by subjective and objective improvement, with the size of the sigmoid being decreased considerably when examined radiologically. 11 references. 6 figures. *J. I. de Bruyne.*

Treatment of Acute Intussusception by an Enema of Roentgenologic Contrast Medium. *Gustaf Lindberg and Olallo Morales, Norrköping Hospital, Norrköping, Sweden.* Am. J. Dis. Child. 77: 303-09, March 1949.

Eighteen consecutive cases of acute intussusception occurring during the first three years of life were successfully treated by reduction with an enema of roentgenologic contrast medium. In every instance the intussusception occurred at the junction of the small intestine and the colon. The reduction is accomplished by use of a mixture containing approximately 1 Kg. of a colloidal suspension of barium sulfate per liter of water at temperature 37° C. The enema is poured from a position about 5 feet above the level of the patient. It is allowed to flow until the obstruction is reached; a roentgenogram of the intussusception is then taken. The colon usually becomes irritated and contracts as in cramp, thereby pushing back the contrast medium and practically emptying the intestine. While this happens it is important to cut off the flow of the enema until the contraction has ceased, when it can be renewed. Reduction may be considered complete when the contrast medium passes freely on into the small intestine. If a part of the obstruction about the size of a walnut remains in the cecum, this must be removed by holding the movable cecum with one hand while massaging in an oral direction with the other. This may be continued for about fifteen minutes. If not successful a pause of

ten to fifteen minutes is advised to allow the colon to relax. A renewed attempt should then prove successful. If this does not succeed, the patient must be anesthetized (which is done easiest with ether); then the attempt is practically always successful. "One can both see and feel the intussusception disappear; there is a sudden jerk and the contrast medium flows out into the small intestine". No complication as a result of the enema treatment has been observed at subsequent operations.

Favorable results seem to depend mainly on: the short time elapsed before treatment (in most cases only a few hours) and the skill in administration of the enemas. 3 references. 3 figures.

(This treatment is worthy of trial provided the intussusception is known to be early. It is fraught with danger if there is any chance of the bowel being already gangrenous. The authors press the treatment more vigorously than do most physicians. There is risk in introducing the enema from a height greater than 3 feet above the fluoroscopic table on which the patient is recumbent. Excess pressure can cause laceration of the colonic wall if it is weakened.—ED.)

Spina Bifida Cystica. *A. P. Norman, Hospital for Sick Children, Great Ormond Street, London, Eng.* Arch. Dis. Childhood 24: 25-28, March 1949.

The clinical course and prognosis of spina bifida with meningoceles of various types was studied in 161 cases having a protruding sac. The locations of the defect were: cranial 20, cervical 4, dorsal 6, lumbo-dorsal 9, lumbar 69, lumbo-sacral 17, sacral 26, sacro-coccygeal 1, unknown 9. Other congenital anomalies were occasionally associated. Seventy-four cases were considered as unsuitable for surgery. Eighteen of these are known to have reached one year of age, but only ten were normal in every other respect when last seen. Two sacs fibrosed and disappeared almost completely leaving only a small fibrous knob, the one spontaneously and the other after rupture. The mortality rate was highest in the first four weeks of life. Rupture of the sac is known to have been the cause of only one death, but early operation may have prevented rupture or saved life in others. Fatal infection occurred more often than in those operated upon.

Eighty-seven patients without severe deformity or paralysis were operated upon, 83 by excision or obliteration of the sac, 3 by suboccipital decompression, and one by simple incision of the sac. Of these, 41 were living at the time of the survey. Thirty-one appeared to be physically and mentally normal. No child with paralysis of limbs or sphincters appeared to have been improved by operation. Seventeen had hydrocephalus after operation. The hydrocephalus usually developed in the first months, whether with or without operation. Hydrocephalus may be precipitated by operation in some unknown way, by stimulating the production of cerebrospinal fluid. One child with a small pedunculated meningocele developed a rapidly increasing hydrocephalus after operation; after over fifty lumbar punctures this subsided and she is today a normal child.

It is concluded that operation should be delayed until after one year of age, and then be performed only on children showing no progressive hydrocephalus and no neurologic abnormalities. In at least 40 per cent of such cases there is a chance of obtaining a normal child. The advantages of removing the cystic tumor must be weighed against the danger of causing paralysis of sphincters or limbs and the operative risk, although in rare cases a nerve may be relieved from pressure or tension. 14 references. 6 tables.

Spina Bifida Cystica: Review of Seventy Cases With Report of a Case of Cervical Meningocele. *Robert O. Warthen, Joseph M. LoPresti and William F. Burdick.* M. Ann. District of Columbia 18: 298-301, June 1949.

Seventy cases of spina bifida cystica, including 19 meningoceles and 51 meningomyeloceles over a twelve-year period are reviewed.

The authors stress the importance of careful preoperative management to prevent rupture or infection of the sac and to facilitate surgery. Fifty-one cases, or 88.7%, were deemed inoperable because of rupture, infections, meningitis accompanied by hydrocephalus or complete paraplegia. All cases with minor neurologic changes should be repaired surgically providing uncorrectible complications or major associated anomalies are not present.

Except when the overlying skin is of normal thickness, surgery should be done as soon after birth as possible when the overlying skin is thin and atrophic. Anticipated hydrocephalus should not delay surgery. 11 references. 4 tables.—*R. Cohen.*

Surgical Management of Respiratory Emergencies During the First Few Weeks of Life. *Leon J. Leahy and Winfield L. Butsch, Buffalo, N. Y.* Arch. Surg. 59: 466-83, Sept. 1949.

The respiratory emergencies of the first few weeks of life may result from aspiration of amniotic fluid during labor, rupture of alveoli from too vigorous attempts at artificial respiration, or failure of the lobes to expand with persistence of fatal atelectasis. Developmental abnormalities producing dyspnea are represented by tracheo-esophageal fistula, agenesis of the lung, diaphragmatic hernia and eventration of the diaphragm. Such extrathoracic causes as cerebral laceration or subdural hematoma must also be considered.

The authors describe three instances of intrathoracic pathologic conditions producing respiratory embarrassment, and their surgical correction during the first few weeks of life. The first was a large emphysematous left upper lobe in a 14-week old infant. The size of this shifted the mediastinum to the right and produced marked spells of dyspnea and cyanosis, requiring oxygen therapy. The lobe was removed, with a completely normal course since then. No bronchial obstruction was found. The second

infant was in continuous difficulty with persistent atelectasis of the right upper and lower lobes and pleural effusion. A gastrogenic mediastinal cyst was removed at the age of 7 weeks which resulted in re-expansion of the lobes and an uneventful convalescence. Multiple cysts of the left lung produced the dyspnea in the third infant. A left pneumonectomy performed during the seventh week of life resulted in complete relief.

The avoidance of aspirating such cystic structures is emphasized The reasons given are that the aspirations may result in infection of the pleural space or a tension pneumothorax. The inadequacy of aspiration in control of the disordered respiratory physiology is pointed out. Surgical correction was well tolerated and seemed the safest procedure in these infants.—*Author's abstract.*

Methods of Induction in Pediatric Anesthesia. *Robert M. Smith, Children's Hospital, Boston, Mass.* New England J. Med. 240: 761-65, May 12, 1949.

One of the most important factors in the successful induction of infants and children is the preoperative handling. Here the first objective is the elimination of fear. This end may be furthered by proper reassurance at home and by admission to the hospital at least one day before operation, thereby aiding in adapting to hospital routines and to separation from the parents. Also important are the preoperative visit by the anesthetist and preoperative medication sufficient to make the child calm and drowsy before arrival on the operating floor.

Spinal anesthesia or curare and pentothal are infrequently used for infants under one year. Most uniform results have been obtained with the vinethene-ethyl ether sequence using a small mask with only four layers of gauze. Although slightly more hazardous for routine use in infants, cyclopropane is the agent of choice for the induction of ill, premature and resistant infants since it is breathed readily with little struggling or breath-holding.

Since there is almost always a large residue in the stomach, the infant with pyloric stenosis should have its stomach emptied via a small nasal tube before anesthesia is started.

All infants and children should be given atropine to prevent excessive secretions and to depress vagal reflexes. In children over one year of age morphine is indicated for its analgesic effect and to lower metabolic rate. Barbiturates are tolerated well and are useful for sedation. Children one to three years of age are greatly disturbed by needles but lend themselves well to the judicious use of basal narcosis achieved with avertin or pentothal given rectally. Children over three years of age require a maximum of preoperative preparation through drug effect, rational reassurance, and various devices for diverting attention from the unpleasant aspects of the operative procedure. Restraints or eye coverings should not be used.

Cardiac patients do best with a combination of: 1) sedation adequate to decrease the oxygen demand and decrease cardiac work; 2) a minimum of induction excitement; 3) a maximum of oxygen.

Because of poor psychologic preparation and the danger of aspiration of gastric contents, anesthesia for the outpatient child may be a major problem although the surgery is minor. A combination of avertin rectally with light nitrous oxide-oxygen, supplemented if necessary by block anesthesia is recommended for most of these cases. Vinethene is often used if the procedure requires only momentary anesthesia. 7 references. 1 table.—*K. F. Eather.*

Pre-Anesthetic Preparation in Children. *Lester C. Mark and E. M. Papper, New York, N. Y.* J. Med. Soc. New Jersey 46: 520-23, Nov. 1949.

The psychologic aspects of pre-anesthetic preparation in children are discussed. Proper handling of the young patient and psychologic preparation for surgery are stressed as the responsibility of the parents, the physicians and the hospital. Scopolamine and meperidine in suitable doses afford satisfactory premedication. For very brief emergency procedures, vinyl ether is useful without premedication. Preoperative apprehension in children can be eliminated by rectal pentothal hypnosis. The result is a more normal physiologic pulse rate during anesthesia. Sodium pentothal in 10% solution is employed in precise dosage of 1 Gm. per 75 lb. of body weight. This results in neither anesthesia nor basal narcosis but does produce pre-anesthetic hypnosis. Consequently, the ward nurse may safely administer rectal pentothal in the amount prescribed and furnished by the anesthesiologist. Omitting barbiturates, the administration of rectal pentothal does not preclude the use of other premedicants in the usual doses, together with any desired anesthetic agents and technics. 19 references.—*Author's abstract.*

32. Tumors

Wilms' Tumor in a New Infant. Report of a Case with Autopsy Studies. *Hans Hartenstein, Chicago, Ill.* J. Pediat. 35: 381-84, Sept. 1949.

The author describes a newborn colored male with a distended abdomen and a palpable round movable mass filling its entire left half. The clinical impression was left-sided congenital hydronephrosis. The infant died at the age of two hours. Autopsy revealed the mass to be a Wilms' tumor replacing the left kidney. Normal renal tissue was found within the tumor.

(*Normal babies can exhibit growing and even metastatic neoplasms of all the varieties ordinarily seen in infancy and early childhood.*—ED.)

THE PEDIATRIC BOOKSHELF

Clinical Endocrinology for Practitioners and Students. *Laurence Martin & Martin Hynes, with a foreward by Sir Lionel Whitby.* Philadelphia, Pa. The Blakiston Company, 1948. 207 pp. $4.50.

Even for the specialist in the field, endocrinology has become very broad and difficult, and much is still poorly understood. For most physicans it presents a bewildering confusion of unfamiliar terms and bizarre syndromes. There is real need for a clear concise guide which focuses attention on the problems as they present themselves clinically. This book is intended as such a guide and succeeds remarkably well for such a small book. Basic anatomic and physiologic considerations are presented briefly and the commoner clinical syndromes are described. Without being led into rash attempts at therapy, the reader is made aware of what can be done or attempted and the difficulties involved. The book is well written and readable, and should be valuable to those who do not specialize in endocrinology. The references at the end of each chapter are generally well chosen. The 32 photographs are clear and informative. Diabetes mellitus is not included: "The proper treatment of such an important and complex disease would have doubled the size of this book, and even then we could not have rivalled the excellence of the standard monographs on the subject."

The Parathyroid Glands and Metabolic Bone Disease: Selected Studies. *Fuller Albright, Boston, Mass. and Edward C. Reifenstien, Jr., New York, N. Y.* Baltimore, Md., Williams and Wilkins, 1948. $8.00.

These studies summarize many of the metabolic researches on calcium metabolism and bone diseases which have been carried out on the Metabolic Ward of the Massachusetts General Hospital over a 24-year period. The observations and the deductions drawn therefrom are integrated under such chapter headings as: The Parathyroid Glands; Normal and Pathologic Physiology; Clinical Hypoparathyroidism; Clinical Hyperparathyroidism; Mode of Action of vitamin D and dihydrotachysterol; Metabolic Bone Disease; Osteoporosis; Osteomalacia; Polyostotic Fibrous Dysplasia; and Paget's Disease. The Appendix discusses Sulkowitch solution and its uses, phosphorus, potassium and sulfur balances, and methods of charting and analysis. The patients have been adults, and their disturbances are discussed in terms of what goes on during the adult years, so that the pediatrician seeking for detailed facts and interpretations concerning childhood problems must perforce turn elsewhere.

Much information of interest to our specialty can nevertheless be gleaned from these pages as, for example, in the authors' hypothesis of the mode of action of the parathyroid hormone. The parathyroid hormone, in their opinion, acts directly upon the electrolyte equilibria of the body fluid; bone changes, when they occur, are secondary to the chemical changes. The sequence of events is believed to be somewhat as follows: The parathyroid hormone affects the phosphate dissolved in body fluids and makes it more readily excreted by the kidney, with a resulting decrease in the serum phosphorus level. This tends to make the body fluids less saturated in regard to whatever equilibrium constant governs the serum calcium and phosphorus values. Resorption of the calcium-phosphate salt from the bone-resorbing surfaces is thereby stimulated. An elevated serum calcium level results, together with a depressed serum phosphorus level. Once this new state of equilibrium has been reached, no further changes would occur were it not that the higher serum calcium level leads to an increased calcium excretion in the urine. This loss of calcium in the urine tends to cause undersaturation of the body fluids again, so that unless there is a supply of calcium from the gastro-intestinal tract the bones will have to supply the deficit. Therefore, a decrease in the total amount of bone tissue results and the bones become weak. As the bones weaken they respond to stresses and strains by laying down more osteoid tissue. The osteoid tissue then becomes calcified since the local calcifying factor (phosphatase-phosphorylase mechanism) will more than offset the decreased saturation. The drain of calcium and phosphorus into osteoid tissue further tends to undersaturate the blood and increase the bone resorption. The result, of course, is a vicious cycle. Thus is explained the four cardinal metabolic changes induced by parathyroid hormone, namely, an immediate decrease in the phosphorus excretion in the urine followed by a rise in the serum phosphorus level, fall in the serum calcium level and diminished calcium excretion in the urine.

Clinical Biochemistry. *Abraham Cantarow, M.D., Professor of Biochemistry, Jefferson Medical College and Max Trumper, Ph.D., Commander, H (S), USNR. Naval Medical School, National Naval Medical Center, Bethesda, Maryland.* Philadelphia, Pa., Saunders, 1949. $8.00.

This new edition contains many revisions and much added material. One would have to delve into many assorted references to find integrated expositions of the many topics analyzed so authoritatively here. Nearly all of the discussions are as applicable to pediatrics as to adult medicine.

Advances in Pediatrics, Volume IV. *Edited by Samuel Z. Levin, Allen M. Butler, L. Emmett Holt, Jr. and A. Ashley Weech.* New York, N. Y., Interscience Publishers, Inc., 1949. $6.50.

This volume is composed of seven excellent "personalized" monographs by distinguished contributors, several from abroad. The topics discussed are: 1) Diet in Diabetes in Childhood (A. Lichtenstein, Stockholm); 2) Treatment of Congenital Syphilis with Penicillin (Ralph V. Platou,

New Orleans); 3) Erythema Nodosum (Ruth T. Gross, Oxford, and Rustin McIntosh, New York); 4) The Reticulo-endothelioses in Children (Sture Sieve, Lund, Sweden); 5) Combined Immunization (Joseph H. Lapin and Manfred Weichel, New York); 6) Subdural Hematoma in Infancy (Franc D. Ingraham and Donald D. Matson, Boston, Mass.); 7) Cystinosis: Cystine Disease (Lignac's Disease) in Children (E. Freudenberg, Basel). The presentations are authoritative and well rounded and among the best to be found.

Child Psychiatry. *Leo Kanner, M.D.* Springfield, Ill. Charles C. Thomas, 1948. 778 pp. $8.50.

Since 1935 pediatricians have been referring with interest and value to Kanner's textbook on child psychiatry. Some of the deficiencies of that book have now been corrected in a second edition of the text. The improvement manifests itself in greater clarity of the nomenclature through the omission of many of the terms of psychobiology which were coined by Adolf Meyer. The new edition also benefits from an absence of the fight which Kanner carried on with psychoanalysis in the first edition.

Kanner's book continues to contain encyclopedic information. The author draws heavily upon the European psychiatrists, particularly those from pre-World War II Germany. There are four parts to the book, the first dealing with the history of child psychiatry, starting with the first decade of the twentieth century. Part 2 deals with developmental characteristics of children, and discusses physical conditions, intelligence, emotion, personality development, attitudes of the material environment; part 3 deals with clinical considerations and part 4 describes various personality problems arising from physical illness and psychosomatic disease. The pediatrician will find much of value in this book, but he will miss a description of growth and development which gives the feeling of dealing with actual children. Kanner's book seems to lack an understanding and feeling for the average child in our culture, and sometimes some of the traits seen in the every day life of the child in certain phases of his development are considered pathologic. For example, on page 483, nightmares are considered along with night terrors and the author considers them "more or less drastic indications that something is wrong with the child and that it is his personality that is in need of investigation and adjustment." The pediatrician who has cared for and studied the average preschool child will realize that nightmares and nocturnal fears are frequent manifestations in the life of child at that developmental epoch and that they do not necessarily nor by themselves represent psychopathologic conditions. Throughout the book there tends to be an emphasis on psychopathology almost in terms of adult behavior.

The book has many valuable items, and for the most part the author shows his permissiveness and acceptance of behavior which authors too frequently condemn as misbehavior or immoral. The author is at his best in describing the results of his experiences with pediatricians and

children on the wards of the Harriet Lane Home. His humane and kindly understanding of the needs of the sick child manifest themselves when he advocates better psychologic care of the sick child. It may be predicted that this book will continue to be a favorite among American pediatricians. —*M. J. E. S.*

Your Child's Mind and Body; a Practical Guide for Parents. *Flanders Dunbar*. New York, N. Y., Random House, 1949. 324 pp.

Presenting a psychiatrist's point of view, the author is at her best in helping parents to recognize the advantages of assisting a child to learn rather than formally teaching him. She applies this principle to the normal concerns of the mother with the processes of feeding, toilet training, and sleep.

Adolescence—Its Social Psychology; With an Introduction to Recent Findings from the Fields of Anthropology, Physiology, Medicine, Psychometrics and Sociometry. *C. M. Fleming*. International Universities Press, Inc. $4.50.

Adolescence need not be a period of storm, stress, and rebellion. This book brings together the recent findings of the human sciences which point out that these characteristics long associated with puberty are not biologically determined, but are socially conditioned. Freed from these legendary concepts the doctor, educator, parent and employer are challenged to provide optimal conditions for the successful maturing of the whole person. This book comprehensively covers the complete life pattern, realistically applying these recent studies to each phase of growth and development of young people, whether in the home, school, industry, or the army. Each of these varying subjects discussed is followed by a complete bibliography. This is a readable volume for those interested in any phase of adolescence not as a distinct period of life, but rather as another step in the gradual growth from a satisfactory childhood to a mature adulthood.

The Stork Didn't Bring You. *Lois Pemberton*. Hermitage Press. $2.75.

Any teenager will understand the direct language of this book, often in his own jargon and style, and will appreciate the complete information given in a straightforward, brisk manner. Having dispelled the stork-myth, the book, cleverly illustrated, gives a sex vocabulary which it then employs to discuss the physiology, psychology, and sociology of sex. Advice on petting, pre-marital relations, etc., which from parental lips might be scorned, is given with firm conviction and psychiatric substantiation. No teenager will put this book down half-read, and many will reread it.

Childhood and After. *Susan Isaacs*. New York, N. Y., International Universities Press, 1949. 245 pp. $4.50.

The book comprises a collection of essays written by the late Susan Isaacs between the years 1928 and 1945. The first essay is as informative and contributes as much today to an understanding of the preschool child as when it was written in 1928. Although Susan Isaacs was primarily an

educator, she became one of the outstanding interpreters of child psychology through her work in psychoanalysis. American medicine, particularly pediatrics, has not been influenced enough by Mrs. Isaacs. The pediatrician in practice quite as much as he who is in research in the field of growth and development will find the essays in this small book stimulating, provocative and informative. Although there is some repetition and at times emphasis on technical considerations, this book is to be highly recommended to any person who would like to understand better the behavior of the preschool child. Two essays written during the period of the last war deal with children who have been separated from parents, either through institutionalization or loss of the father. Pediatricians dealing with such children will find this material particularly valuable.—*M. J. E. S.*

Nutrition Surveys: Their Techniques and Value. *Committee on Nutrition Surveys, Food and Nutrition Board, Division of Biology and Agriculture.* Washington, D.C., National Research Council, 1949. $1.50.

This volume represents a critical and authoritative appraisal of current concepts. It is broken up into seven well-rounded sections respectively entitled: The Objectives and Demonstrated Value of Nutrition Surveys; Dietary Surveys and Their Interpretation; Chemical Tests and Their Interpretation; Clinical Diagnosis in Nutrition Survey; The Role of Surveys in Community Nutrition Programs; Nutrition Surveys in Relation to Professional Training in Schools of Medicine and Public Health; and The Role of Health Departments in Nutrition Surveys and Appraisal.

American Pediatric Directory 1949-1950. Fourth Edition. *Joe T. Smith, M.D., Editor and Publisher, Laurel Ave. at 22nd St., Knoxville, Tennesse.* $7.00.

This is an up-to-date list of the pediatricians of the United States. Included also are the many practitioners who major in pediatrics. Considerable biographic information with respect to professional activities is given, compressed into an ingenious easy-to-read set of symbols and abbreviations.

Announcements

The provisional program ("Meeting Information") of the Sixth International Congress of Pediatrics, Zurich 1950 (21st—31st July) has been circulated to the presidents of national pediatric associations in all countries through the American Express Co., Inc. and the foreign diplomatic representatives in Berne. The program is available to anybody who is interested, either through the offices of the pediatric association of his own country or through the American Express Co. A short synopsis of the events that are scheduled to take place at the time of the Congress is given below:

1. Scientific and Industrial Exhibition in conjunction with an Exhibition organized by the World Health Organization which will be open to the public. Duration: July 21st—31st.

2. Advanced lectures on many topics related to pediatrics will be delivered in different languages during the Exhibition.

3. There will be conducted tours and demonstrations (in different languages) through a number of hospitals and welfare institutions, etc., of the town of Zurich and the neighboring districts.

4. Nurses and sisters of many countries will be invited through the International Council of Nurses to attend a Conference from July 28th—29th, 1950.

Requests have been sent through the Swiss Diplomatic Service to the governments of 62 countries to send official representatives to the Congress. We would ask the governing bodies of all national Pediatric Societies to assist in the nomination of these delegates in order that we may have at hand the names of the officially appointed representatives before February 1st, 1950.

The President: Prof. G. FANCONI
The Secretary General: Dr. H. ZELLWEGER

Communication re the Sixth International Congress of Pediatrics

The 6th International Congress of Pediatrics will be held at the end of July, 1950, in Zürich, Switzerland. President is Professor G. Fanconi, M.D.

Programme:

July 21st: Opening of the scientific and industrial exhibition. Opening of the public exhibition organized by the World Health Organization, the International Red Cross and the International Union for Child Welfare.

July 21st and 22nd: Advanced lectures, partly intended as introduction to the group lectures.

July 23rd, p. m.: Official reception.

July 24th, a. m.: First Plenary Session.

From July 24th, p. m. to July 27th: Group lectures of which 6-7 will be held simultaneously.

July 27th, p.m.: Excursion on the Lake of Zürich.

July 28th, a. m.: Second Plenary Session.

July 28th, p. m.: Group lecture held conjointly with the International Union against Venereal Disease.

July 28th, p. m.: Banquet.

July 28th and 29th: Advanced lectures.

July 31st, p. m.: Close of the exhibitions.

During the time of the Conference there will be demonstrations in and conducted tours through a number of laboratories, hospitals and welfare institutions in Zürich, further tours to historical places and to the "Village Pestalozzi", Trogen. Moreover a special programme for ladies will be arranged.

The date for registering the participation in the Congress has been deferred to *April 22nd*, 1950. Participants must register with the American Express Co. Inc., Sihlporteplatz 3, Zürich, or their agencies or correspondents in the different countries.

Each participant must be in possession of a Congress Card which is available at the agencies and correspondents of the American Express Co. Three different types of Congress Cards will be issued:

a) *Congress Card Series "A", Sfr.* 100.—entitles the holder to participate in all sessions, visits and receptions, including the official reception of July 23rd, 1950, the official banquet and the excursion on the Lake of Zürich, free admission to the scientific and the industrial exhibition, and receipt of all printed Congress literature (lecture volume, exhibition guide and official Congress programme).

b) *Congress Card Series "B", Sfr.* 60.—for accompanying ladies, entitles the holder to participate in all sessions, visits and receptions, to free admission to the scientific and industrial exhibition, and to take part in the entertainments provided in the Ladies' Programme.

c) *Congress Card Series "C", Sfr.* 60.—entitles the holder to participate in all scientific sessions, to free admission to the scientific and industrial exhibition and to receipt of all printed Congress literature.

Applications for hotel accommodation have to be made with the agencies or correspondents of the American Express Co. To Colleagues who have to travel under restricted financial circumstances we can offer cheap lodging possibilities (price for lodging, breakfast and one meal Sfr. 10. per day), which are also available through the intermediary of the American Express Co.

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*J'l. Pediat. 16:130, 1940

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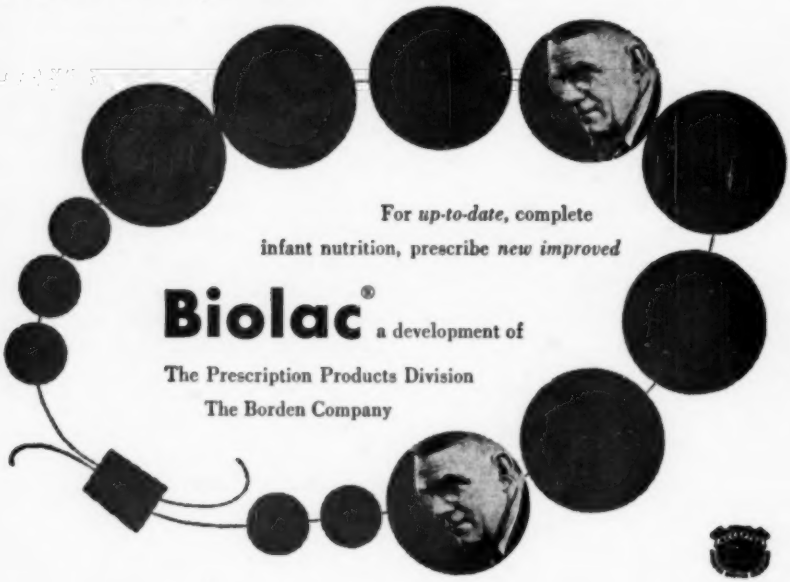

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